

-1-

SEQUENCE LISTING



RECEIVED

NOV 21 2000

TECH CENTER 1600/2900

<110> Hartley, James  
Brasch, Michael  
Temple, Gary  
Cheo, David

<120> Compositions and Methods for Use in Recombinational Cloning of Nucleic  
Acids

<130> 0942.4680003

<140> 09/517,466

<141> 2000-03-02

<150> US 60/122,389

<151> 1999-03-02

<150> US 60/126,049

<151> 1999-03-23

<150> US 60/136,744

<151> 1999-05-28

<160> 184

<170> PatentIn version 3.0

<210> 1

<211> 25

<212> DNA

<213> attB1

<400> 1  
acaagtttgt acaaaaaagc aggct

<210> 2

<211> 25  
<212> DNA  
<213> attB2

<400> 2  
accagcttt cttgtacaaa gtggt 25

<210> 3  
<211> 233  
<212> DNA  
<213> attP1

B1  
<400> 3  
tacaggtcac taataccatc taagtagttg attcatagtg actggatatg ttgtgtttta 60  
cagtattatg tagtctgttt tttatgcaaa atctaattta atatattgat atttatatca 120  
ttttacgttt ctggttcagc ttttttgtac aaagttggca ttataaaaaa gcattgctca 180  
tcaatttggt gcaacgaaca ggtcactatc agtcaaaata aaatcattat ttg 233

<210> 4  
<211> 233  
<212> DNA  
<213> attP2

<400> 4  
caaataatga ttttattttg actgatagtg acctgttcgt tgcaacaaat tgataagcaa 60  
tgctttctta taatgccaac tttgtacaag aaagctgaac gagaaacgta aaatgatata 120  
aatatcaata tattaaatta gattttgcat aaaaaacaga ctacataata ctgtaaaaca 180  
caacatatcc agtcactatg aatcaactac ttagatggta ttagtgacct gta 233

<210> 5  
<211> 125  
<212> DNA  
<213> attR1

<400> 5  
acaagtttgt acaaaaaagc tgaacgagaa acgtaaaatg atataaatat caatatatta 60  
aattagattt tgcataaaaa acagactaca taatactgta aaacacaaca tatccagtca 120  
ctatg 125

<210> 6  
<211> 135  
<212> DNA  
<213> attR2

B1.  
<400> 6  
gcaggtcgac catagtgact ggatatgttg tgttttacag tattatgtag tctgtttttt 60  
atgcaaaaatc taatttaata tattgatatt tatatcattt tacgtttctc gtccagcttt 120  
cttgtacaaa gtggc 135

<210> 7  
<211> 100  
<212> DNA  
<213> attL1

<400> 7  
caaataatga ttttattttg actgatagtg acctgttcgt tgcaacaaat tgataagcaa 60  
tgctttttta taatgccaac tttgtacaaa aaagcaggct 100

<210> 8  
<211> 100  
<212> DNA  
<213> attL2

<400> 8  
caaataatga ttttattttg actgatagtg acctgttcgt tgcaacaaat tgataagcaa 60  
tgctttctta taatgccaac tttgtacaag aaagctgggt 100

<210> 9  
<211> 15

<212> DNA

<213> 15 bp Core Region of attB, attP, attL, and attR

<400> 9  
gcttttttat actaa

15

<210> 10

<211> 30

<212> DNA

<213> attL5

B1  
<400> 10  
agcctgcttt attatactaa gttggcatta

30

<210> 11

<211> 30

<212> DNA

<213> attL6

<400> 11  
agcctgcttt tttatattaa gttggcatta

30

<210> 12

<211> 28

<212> DNA

<213> attB1.6

<400> 12  
ggggacaact ttgtacaaaa aagttggc

28

<210> 13

<211> 29

<212> DNA

<213> attB2.2



<400> 13  
ggggacaact ttgtacaaga aagctgggt 29

<210> 14

<211> 29

<212> DNA

<213> attB2.10

<400> 14  
ggggacaact ttgtacaaga aagttgggt 29

<210> 15

<211> 24

<212> DNA

<213> attB2(-1) Oligonucleotide Primer

<400> 15  
cccagctttc ttgtacaaag tgggt 24

<210> 16

<211> 23

<212> DNA

<213> attB2(-2) Oligonucleotide Primer

<400> 16  
ccagctttct tgtacaaagt ggt 23

<210> 17

<211> 22

<212> DNA

<213> attB2(-3) Oligonucleotide Primer

<400> 17  
cagctttctt gtacaaagtg gt 22

<210> 18

B1

<211> 21

<212> DNA

<213> attB2(-4) Oligonucleotide Primer

<400> 18

agcttttcttg tacaaagtgg t

21

<210> 19

<211> 25

<212> DNA

<213> attB1- and attB2-derived Oligonucleotide Primer

<400> 19

acaagtttgt acaaaaaagc aggct

25

<210> 20

<211> 25

<212> DNA

<213> attB1- and attB2-derived Oligonucleotide Primer

<400> 20

accactttgt acaagaaagc tgggt

25

<210> 21

<211> 18

<212> DNA

<213> attB1- and attB2-derived Oligonucleotide Primer

<400> 21

tgtacaaaaa agcaggct

18

<210> 22

<211> 18

<212> DNA

<213> attB1- and attB2-derived Oligonucleotide Primer

<400> 22  
tgtacaagaa agctgggt 18

<210> 23

<211> 15

<212> DNA

<213> attB1- and attB2-derived Oligonucleotide Primer

<400> 23  
acaaaaaagc aggct 15

<210> 24

<211> 15

<212> DNA

<213> attB1- and attB2-derived Oligonucleotide Primer

<400> 24  
acaagaaagc tgggt 15

<210> 25

<211> 12

<212> DNA

<213> attB1- and attB2-derived Oligonucleotide Primer

<400> 25  
aaaaagcagg ct 12

<210> 26

<211> 12

<212> DNA

<213> attB1- and attB2-derived Oligonucleotide Primer

<400> 26  
agaaagctgg gt 12

<210> 27

<211> 11

<212> DNA

<213> attB1- and attB2-derived Oligonucleotide Primer

<400> 27

aaaagcaggc t

11

<210> 28

<211> 11

<212> DNA

<213> attB1- and attB2-derived Oligonucleotide Primer

<400> 28

gaaagctggg t

11

<210> 29

<211> 10

<212> DNA

<213> attB1- and attB2-derived Oligonucleotide Primer

<400> 29

aaagcaggct

10

<210> 30

<211> 10

<212> DNA

<213> attB1- and attB2-derived Oligonucleotide Primer

<400> 30

aaagctgggt

10

<210> 31

<211> 29

<212> DNA

<213> attB1 Oligonucleotide Primer

B1

<400> 31  
ggggacaagt ttgtacaaaa aagcaggct

29

<210> 32

<211> 29

<212> DNA

<213> attB2 Oligonucleotide Primer

<400> 32  
ggggaccact ttgtacaaga aagctgggt

29

<210> 33

<211> 27

<212> DNA

<213> XhoI Insertion Primer

<220>

<221> misc\_feature

<222> (4)..()

<223> n is any nucleotide

<220>

<221> misc\_feature

<222> (5)..()

<223> n is any nucleotide

<220>

<221> misc\_feature

<222> (6)..()

<223> n is any nucleotide

<220>

<221> misc\_feature

B1

<222> (7)..()

<223> n is any nucleotide

<220>

<221> misc\_feature

<222> (8)..()

<223> n is any nucleotide

B1  
<220>

<221> misc\_feature

<222> (9)..()

<223> n is any nucleotide

<220>

<221> misc\_feature

<222> (10)..()

<223> n is any nucleotide

<220>

<221> misc\_feature

<222> (11)..()

<223> n is any nucleotide

<220>

<221> misc\_feature

<222> (12)..()

<223> n is any nucleotide

<220>

<221> misc\_feature

<222> (25)..()

<223> n is any nucleotide

<220>

<221> misc\_feature

<222> (26)..()

<223> n is any nucleotide

<220>

<221> misc\_feature

<222> (27)..()

<223> n is any nucleotide

<220>

<221> misc\_feature

<222> (22)..()

<223> n is any nucleotide

<220>

<221> misc\_feature

<222> (23)..()

<223> n is any nucleotide

<220>

<221> misc\_feature

<222> (24)..()

<223> n is any nucleotide

<400> 33  
atggnnnnnnn nntaactcga gnnnnnnn

27

<210> 34

<211> 30

B1

<212> PRT

<213> attB1 fused into a His6 fusion vector

<400> 34

Met Ser Tyr Tyr His His His His His His Gly Ile Thr Ser Leu Tyr  
1 5 10 15

Lys Lys Ala Gly Phe Glu Asn Leu Tyr Phe Gln Gly Thr Met  
20 25 30

<210> 35

<211> 11

<212> PRT

<213> attB Amino Acid Sequence

<400> 35

Gly Ile Thr Ser Leu Tyr Lys Lys Ala Gly Phe  
1 5 10

<210> 36

<211> 48

<212> DNA

<213> attL1 PCR Primer

<400> 36

ggggagcctg ctttttttgta caaagttggc attataaaaa agcattgc

48

<210> 37

<211> 48

<212> DNA

<213> attL2 PCR Primer

<400> 37

ggggagcctg ctttcttgta caaagttggc attataaaaa agcattgc

48

<210> 38

<211> 22

<212> DNA



<213> attL Right PCR Primer

<400> 38

tggtgccggg aagctagagt aa

22

<210> 39

<211> 43

<212> DNA

<213> attR1 PCR Primer

<400> 39

ggggacaagt ttgtacaaaa aagctgaacg agaaacgtaa aat

43

<210> 40

<211> 43

<212> DNA

<213> attR2

<400> 40

ggggacaagt ttgtacaaga aagctgaacg agaaacgtaa aat

43

<210> 41

<211> 22

<212> DNA

<213> attR Right

<400> 41

cagacggcat gatgaacctg aa

22

<210> 42

<211> 29

<212> DNA

<213> B1-Hgb

<400> 42

ggggacaagt ttgtacaaaa aagcaggct

29

B1

<210> 43  
<211> 28  
<212> DNA  
<213> B2-Hgb

<400> 43  
ggggaccact ttgtacaaga aagctggg 28

B1  
<210> 44  
<211> 18  
<212> DNA  
<213> 18B1-Hgb

<400> 44  
tgtacaaaaa agcaggct 18

<210> 45  
<211> 18  
<212> DNA  
<213> 18B2-Hgb

<400> 45  
tgtacaagaa agctgggt 18

<210> 46  
<211> 15  
<212> DNA  
<213> 15B1-Hgb

<400> 46  
acaaaaaagc aggct 15

<210> 47  
<211> 15  
<212> DNA

<213> 15B2-Hgb

<400> 47  
acaagaaagc tgggt

15

<210> 48

<211> 12

<212> DNA

<213> 12B1-Hgb

<400> 48  
aaaaagcagg ct

12

<210> 49

<211> 12

<212> DNA

<213> 12B2-Hgb

<400> 49  
agaaagctgg gt

12

<210> 50

<211> 11

<212> DNA

<213> 11B1-Hgb

<400> 50  
aaaagcaggc t

11

<210> 51

<211> 11

<212> DNA

<213> 11B2-Hgb

<400> 51  
gaaagctggg t

11

B1

<210> 52  
<211> 10  
<212> DNA  
<213> 10B1-Hgb

<400> 52  
aaagcaggct 10

B1  
<210> 53  
<211> 10  
<212> DNA  
<213> 10B2-Hgb

<400> 53  
aaagctgggt 10

<210> 54  
<211> 29  
<212> DNA  
<213> attB1 adapter

<400> 54  
ggggacaagt ttgtacaaaa aagcaggct 29

<210> 55  
<211> 29  
<212> DNA  
<213> attB2 adapter

<400> 55  
ggggaccact ttgtacaaga aagctgggt 29

<210> 56  
<211> 22  
<212> DNA

<213> -5' -Hgb

<400> 56  
gtcactagcc tgtggagcaa ga 22

<210> 57

<211> 22

<212> DNA

<213> -3' -Hgb

B1  
<400> 57  
aggatggcag agggagacga ca 22

<210> 58

<211> 15

<212> DNA

<213> 15 bp Core Region of attB, attP, attL, and attR

<400> 58  
gcttttttat actaa 15

<210> 59

<211> 48

<212> DNA

<213> attL0 PCR Primer

<400> 59  
ggggagcctg cttttttata ctaagttggc attataaaaa agcattgc 48

<210> 60

<211> 48

<212> DNA

<213> attLT1A PCR Primer

<400> 60  
ggggagcctg ctttattata ctaagttggc attataaaaa agcattgc 48

<210> 61

<211> 48

<212> DNA

<213> attLT1C PCR Primer

<400> 61

ggggagcctg ctttcttata ctaagttggc attataaaaa agcattgc

48

<210> 62

<211> 48

<212> DNA

<213> attLT1G PCR Primer

<400> 62

ggggagcctg ctttggtata ctaagttggc attataaaaa agcattgc

48

<210> 63

<211> 48

<212> DNA

<213> attLT2A PCR Primer

<400> 63

ggggagcctg cttttatata ctaagttggc attataaaaa agcattgc

48

<210> 64

<211> 48

<212> DNA

<213> attLT2C PCR Primer

<400> 64

ggggagcctg cttttctata ctaagttggc attataaaaa agcattgc

48

<210> 65

<211> 48

<212> DNA

B1

<213> attLT2G PCR Primer

<400> 65  
ggggagcctg cttttgtata ctaagttggc attataaaaa agcattgc 48

<210> 66

<211> 48

<212> DNA

<213> attLT3A PCR Primer

<400> 66  
ggggagcctg ctttttaata ctaagttggc attataaaaa agcattgc 48

<210> 67

<211> 48

<212> DNA

<213> attLT3C PCR Primer

<400> 67  
ggggagcctg ctttttcata ctaagttggc attataaaaa agcattgc 48

<210> 68

<211> 48

<212> DNA

<213> attLT3G PCR Primer

<400> 68  
ggggagcctg ctttttgata ctaagttggc attataaaaa agcattgc 48

<210> 69

<211> 48

<212> DNA

<213> attLA4C PCR Primer

<400> 69  
ggggagcctg cttttttcta ctaagttggc attataaaaa agcattgc 48

<210> 70

<211> 48

<212> DNA

<213> attLA4G PCR Primer

<400> 70

ggggagcctg cttttttgta ctaagttggc attataaaaa agcattgc

48

<210> 71

<211> 48

<212> DNA

<213> attLA4T PCR Primer

<400> 71

ggggagcctg ctttttttta ctaagttggc attataaaaa agcattgc

48

<210> 72

<211> 48

<212> DNA

<213> attLT5A PCR Primer

<400> 72

ggggagcctg ctttttttaa ctaagttggc attataaaaa agcattgc

48

<210> 73

<211> 48

<212> DNA

<213> attLT5C PCR Primer

<400> 73

ggggagcctg cttttttaca ctaagttggc attataaaaa agcattgc

48

<210> 74

<211> 48

<212> DNA



<213> attLT5G PCR Primer

<400> 74  
ggggagcctg cttttttaga ctaagttggc attataaaaa agcattgc 48

<210> 75

<211> 48

<212> DNA

<213> attLA6C PCR Primer

<400> 75  
ggggagcctg cttttttatc ctaagttggc attataaaaa agcattgc 48

B1  
<210> 76

<211> 48

<212> DNA

<213> attLA6G PCR Primer

<400> 76  
ggggagcctg cttttttatg ctaagttggc attataaaaa agcattgc 48

<210> 77

<211> 48

<212> DNA

<213> attLA6T PCR Primer

<400> 77  
ggggagcctg cttttttatt ctaagttggc attataaaaa agcattgc 48

<210> 78

<211> 48

<212> DNA

<213> attLC7A PCR Primer

<400> 78  
ggggagcctg cttttttata ataagttggc attataaaaa agcattgc 48

<210> 79

<211> 48

<212> DNA

<213> attLC7G PCR Primer

<400> 79

ggggagcctg cttttttata gtaagttggc attataaaaa agcattgc

48

<210> 80

<211> 48

<212> DNA

<213> attLC7T PCR Primer

<400> 80

ggggagcctg cttttttata ttaagttggc attataaaaa agcattgc

48

<210> 81

<211> 48

<212> DNA

<213> attL8

<400> 81

ggggagccta cttttttata ctaagttggc attataaaaa agcattgc

48

<210> 82

<211> 48

<212> DNA

<213> attL9

<400> 82

ggggagcctg cttttttata ctaagttggc attataaaaa agcattgc

48

<210> 83

<211> 48

<212> DNA

B1

<213> attL10

<400> 83  
ggggagcctg cttctttata ctaagttggc attataaaaa agcattgc 48

<210> 84

<211> 48

<212> DNA

<213> attL14

<400> 84  
ggggagcctg cttttttata ccaagttggc attataaaaa agcattgc 48

<210> 85

<211> 48

<212> DNA

<213> attL15

<400> 85  
ggggagcctg cttttttata ctaggttggc attataaaaa agcattgc 48

<210> 86

<211> 30

<212> DNA

<213> attL0

<400> 86  
agcctgcttt tttatactaa gttggcatta 30

<210> 87

<211> 30

<212> DNA

<213> attL5

<400> 87  
agcctgcttt attatactaa gttggcatta 30

B1

<210> 88  
<211> 30  
<212> DNA  
<213> attL6

<400> 88  
agcctgcttt tttatattaa gttggcatta 30

<210> 89  
<211> 30  
<212> DNA  
<213> attL13

<400> 89  
agcctgcttt tttatgctaa gttggcatta 30

<210> 90  
<211> 30  
<212> DNA  
<213> attL14

<400> 90  
agcctgcttt tttataccaa gttggcatta 30

<210> 91  
<211> 30  
<212> DNA  
<213> attL15

<400> 91  
agcctgcttt tttatactag gttggcatta 30

<210> 92  
<211> 21  
<212> DNA

<213> Consensus sequence for integrase core-binding

<220>

<221> misc\_feature

<222> (7)..()

<223> n is any nucleotide

<220>

<221> misc\_feature

<222> (8)..()

<223> n is any nucleotide

<220>

<221> misc\_feature

<222> (10)..()

<223> n is any nucleotide

<220>

<221> misc\_feature

<222> (11)..()

<223> n is any nucleotide

<220>

<221> misc\_feature

<222> (12)..()

<223> n is any nucleotide

<220>

<221> misc\_feature

<222> (14)..()

<223> n is any nucleotide

B1

<220>

<221> misc\_feature

<222> (15)..()

<223> n is any nucleotide

<400> 92

caacttnntn nnannaagtt g

21

<210> 93

<211> 25

<212> DNA

<213> attB0

<400> 93

tcaagttagt ataaaaaagc aggct

25

<210> 94

<211> 29

<212> DNA

<213> attB1

<400> 94

ggggacaagt ttgtacaaa aagcaggct

29

<210> 95

<211> 29

<212> DNA

<213> attB2

<400> 95

ggggaccact ttgtacaaga aagctgggt

29

<210> 96

<211> 29

<212> DNA

<213> attB2.1

<400> 96  
ggggaacact ttgtacaaga aagctgggt 29

<210> 97

<211> 29

<212> DNA

<213> attB2.2

B1  
<400> 97  
ggggacaact ttgtacaaga aagctgggt 29

<210> 98

<211> 29

<212> DNA

<213> attB2.3

<400> 98  
ggggaccct ttgtacaaga aagctgggt 29

<210> 99

<211> 29

<212> DNA

<213> attB2.4

<400> 99  
ggggaccaat ttgtacaaga aagctgggt 29

<210> 100

<211> 29

<212> DNA

<213> attB2.5

<400> 100  
ggggaccacg ttgtacaaga aagctgggt 29

<210> 101

<211> 29

<212> DNA

<213> attB2.6

<400> 101

ggggaccact gtgtacaaga aagctgggt

29

<210> 102

<211> 29

<212> DNA

<213> attB2.7

<400> 102

ggggaccact tgggtacaaga aagctgggt

29

<210> 103

<211> 29

<212> DNA

<213> attB2.8

<400> 103

ggggaccact ttttacaaga aagctgggt

29

<210> 104

<211> 29

<212> DNA

<213> attB1 Amplification Site

<400> 104

ggggacaagt ttgtacaaaa aagcaggct

29

<210> 105

<211> 29

<212> DNA

B1



<213> attB1.6 Amplification Site

<400> 105

ggggacaact ttgtacaaaa aagttggct

29

<210> 106

<211> 29

<212> DNA

<213> attB2 Amplification Site

<400> 106

ggggaccact ttgtacaaga aagctgggt

29

<210> 107

<211> 29

<212> DNA

<213> attB2.10 Amplification Site

<400> 107

ggggacaact ttgtacaaga aagttgggt

29

<210> 108

<211> 29

<212> DNA

<213> attB1 PCR Primer

<400> 108

ggggacaagt ttgtacaaaa aagcaggct

29

<210> 109

<211> 29

<212> DNA

<213> attB1n16-20 PCR Primer

<220>

<221> misc\_feature  
<222> (16)..(16)  
<223> n is any nucleotide

<220>

<221> misc\_feature  
<222> (17)..(17)  
<223> n is any nucleotide

<220>

B1  
<221> misc\_feature  
<222> (18)..(18)  
<223> n is any nucleotide

<220>

<221> misc\_feature  
<222> (19)..(19)  
<223> n is any nucleotide

<220>

<221> misc\_feature  
<222> (20)..(20)  
<223> n is any nucleotide

<400> 109  
ggggacaagt ttgtacaaan nnnnaggct

29

<210> 110

<211> 29

<212> DNA

<213> attBln21-25 PCR Primer

<220>

<221> misc\_feature

<222> (21)..()

<223> n is any nucleotide

<220>

<221> misc\_feature

<222> (22)..()

<223> n is any nucleotide

B1  
<220>

<221> misc\_feature

<222> (23)..()

<223> n is any nucleotide

<220>

<221> misc\_feature

<222> (24)..()

<223> n is any nucleotide

<220>

<221> misc\_feature

<222> (25)..()

<223> n is any nucleotide

<400> 110

ggggacaagt ttgtacaaaa aagcnnnnn

29

<210> 111

<211> 29

<212> DNA

<213> attB2 PCR Primer

<400> 111  
ggggaccact ttgtacaaga aagctgggt

29

<210> 112

<211> 29

<212> DNA

<213> attB2n16-20 PCR Primer

<220>

<221> misc\_feature

<222> (16)..()

<223> n is any nucleotide

<220>

<221> misc\_feature

<222> (17)..()

<223> n is any nucleotide

<220>

<221> misc\_feature

<222> (18)..()

<223> n is any nucleotide

<220>

<221> misc\_feature

<222> (19)..()

<223> n is any nucleotide

<220>

<221> misc\_feature

<222> (20)..()

<223> n is any nucleotide

B1

<400> 112  
ggggaccact ttgtacaagn nnnntgggt

29

<210> 113

<211> 29

<212> DNA

<213> attB2n21-25 PCR Primer

<220>

<221> misc\_feature

<222> (21)..()

<223> n is any nucleotide

<220>

<221> misc\_feature

<222> (22)..()

<223> n is any nucleotide

<220>

<221> misc\_feature

<222> (23)..()

<223> n is any nucleotide

<220>

<221> misc\_feature

<222> (24)..()

<223> n is any nucleotide

<220>

<221> misc\_feature

<222> (25)..()

B1

<223> n is any nucleotide

<400> 113  
ggggaccact ttgtacaaga aagcnnnnn

29

<210> 114

<211> 14

<212> DNA

<213> 12bp attB1 forward gene-specific primer

<220>

<221> misc\_feature

<222> (13)..()

<223> n is any nucleotide

<220>

<221> misc\_feature

<222> (14)..()

<223> n is any nucleotide

<400> 114  
aaaaagcagg cttn

14

<210> 115

<211> 13

<212> DNA

<213> 12bp attB2 reverse gene-specific primer

<220>

<221> misc\_feature

<222> (13)..()

<223> n is any nucleotide

<400> 115  
agaaagctgg gtn 13

<210> 116

<211> 29

<212> DNA

<213> attB1 adapter primer

<400> 116  
ggggacaagt ttgtacaaaa aagcaggct 29

<210> 117

<211> 29

<212> DNA

<213> attB2 adapter primer

<400> 117  
ggggaccact ttgtacaaga aagctgggt 29

<210> 118

<211> 2717

<212> DNA

<213> pENTR1a

<220>

<221> gene

<222> (67)..(166)

<223> attL1

<220>

<221> gene

<222> (321)..(626)

<223> ccdB

B1

<220>

<221> gene

<222> (655) .. (754)

<223> attL2

<220>

<221> gene

<222> (877) .. (1686)

<223> KmR

B 1  
<220>

<221> gene

<222> (1791) .. (2364)

<223> ori

<400> 118

```
ctgacggatg gccttttttgc gtttctacaa actcttctctg ttagttagtt acttaagctc      60
gggcccccaaa taatgatttt attttgactg atagtgacct gttcgttgca acaaattgat      120
aagcaatgct tttttataat gccaaactttg tacaaaaaag caggctttaa aggaaccaat      180
tcagtcgact ggatccggta ccgaattcgc ttactaaaag ccagataaca gtatgcgtat      240
ttgcgcgctg atttttgctg tataagaata tatactgata tgtatacccg aagtatgtca      300
aaaagagggtg tgcttctaga atgcagttta aggtttacac ctataaaaga gagagccgtt      360
atcgtctgtt tgtggatgta cagagtgata ttattgacac gcccgggcga cggatagtga      420
tccccctggc cagtgcacgt ctgctgtcag ataaagtctc ccgtgaactt tacccggtgg      480
tgcatatcgg ggatgaaagc tggcgcatga tgaccaccga tatggccagt gtgccggtct      540
ccgttatcgg ggaagaagtg gctgatctca gccaccgcca aaatgacatc aaaaacgcca      600
ttaacctgat gttctgggga atatagaatt cgcggccgca ctcgagatat ctagaccag      660
ctttcttgta caaagttggc attataagaa agcattgctt atcaatttgt tgcaacgaac      720
aggtcactat cagtcaaaat aaaatcatta tttgccatcc agctgcagct ctggcccgtg      780
tctcaaaatc tctgatgtta cattgcacaa gataaaaata tatcatcatg aacaataaaa      840
ctgtctgctt acataaacag taatacaagg ggtgttatga gccatattca acgggaaacg      900
tcgaggccgc gattaaattc caacatggat gctgatttat atgggtataa atgggctcgc      960
```



gataatgtcg ggcaatcagg tgcgacaatc tatcgcttgt atgggaagcc cgatgcgcca 1020  
gagttgtttc tgaaacatgg caaaggtagc gttgccaatg atgttacaga tgagatggtc 1080  
agactaaact ggctgacgga atttatgcct cttccgacca tcaagcattt tatccgtact 1140  
cctgatgatg catgggttact caccactgcg atccccggaa aaacagcatt ccaggtatta 1200  
gaagaatatc ctgattcagg tgaaaatatt gttgatgcgc tggcagtgtc cctgcgccgg 1260  
ttgcattcga ttctgtttg taattgtcct tttaacagcg atcgcgattt tcgtctcgct 1320  
caggcgcaat cacgaatgaa taacggtttg gttgatgcga gtgattttga tgacgagcgt 1380  
aatggctggc ctgttgaaca agtctggaaa gaaatgcata aacttttgcc attctcaccg 1440  
gattcagtcg tcactcatgg tgattttctca cttgataacc ttatttttga cgaggggaaa 1500  
ttaatagggt gtattgatgt tggacgagtc ggaatcgag accgatacca ggatcttgcc 1560  
atcctatgga actgcctcgg tgagttttct ccttcattac agaaacggct ttttcaaaaa 1620  
tatgggtattg ataatcctga tatgaataaa ttgcagtttc atttgatgct cgatgagttt 1680  
ttctaatacag aattgggttaa ttgggtgtaa cattattcag attgggcccc gttccactga 1740  
gcgtcagacc ccgtagaaaa gatcaaagga tcttcttgag atcctttttt tctgcgcgta 1800  
atctgctgct tgcaaacaaa aaaaccaccg ctaccagcgg tggtttggtt gccggatcaa 1860  
gagctaccaa ctctttttcc gaaggtaact ggcttcagca gagcgcagat accaaatact 1920  
gttcttctag tgtagccgta gttaggccac cacttcaaga actctgtagc accgcctaca 1980  
tacctcgctc tgctaatect gttaccagtg gctgctgcc gtggcgataa gtcgtgtctt 2040  
accggggttg actcaagacg atagttaccg gataaggcgc agcggtcggg ctgaacgggg 2100  
ggttcgtgca cacagcccag cttggagcga acgacctaca ccgaactgag atacctacag 2160  
cgtgagctat gagaaagcgc cacgcttccc gaagggagaa aggcggacag gtatccggta 2220  
agcggcaggg tcggaacagg agagcgcacg agggagcttc cagggggaaa cgcctgggtat 2280  
ctttatagtc ctgtcgggtt tcgccacctc tgacttgagc gtcgattttt gtgatgctcg 2340  
tcaggggggc ggagcctatg gaaaaacgcc agcaacgcgg ccttttttac gttcctggcc 2400  
ttttgctggc cttttgctca catgttcttt cctgcgttat ccctgattc tgtggataac 2460  
cgtattaccg ctagcatgga tctcggggac gtctaactac taagcgagag tagggaactg 2520  
ccaggcatca aataaaacga aaggctcagt cggaagactg ggcctttcgt tttatctggt 2580  
gtttgtcggg gaacgctctc ctgagtagga caaatccgcc gggagcggat ttgaacgttg 2640  
tgaagcaacg gcccgagggg tggcgggcag gacgcccc gccataaactgcc aggcatacaa 2700  
ctaagcagaa ggccatc 2717

<211> 2718  
<212> DNA  
<213> pENTR2B

<220>

<221> gene  
<222> (67)..(166)  
<223> attL1

<220>

B1  
<221> gene  
<222> (322)..(627)  
<223> ccdB

<220>

<221> gene  
<222> (656)..(755)  
<223> attL2

<220>

<221> gene  
<222> (878)..(1687)  
<223> KmR

<220>

<221> gene  
<222> (1792)..(2365)  
<223> ori

<400> 119  
ctgacggatg gccttttttgc gtttctacaa actcttctcg ttagttagtt acttaagctc 60  
gggccccaaa taatgatttt attttgactg atagtgacct gttcgttgca acaaattgat 120

aagcaatgct tttttataat gccaaactttg tacaaaaaag caggctggcg ccggaaccaa 180  
ttcagtcgac tggatccggt accgaattcg cttactaaaa gccagataac agtatgcgta 240  
tttgcgcgct gattttttgcg gtataagaat atatactgat atgtataccc gaagtatgtc 300  
aaaaagaggt gtgcttctag aatgcagttt aaggtttaca cctataaaaag agagagccgt 360  
tategtctgt ttgtggatgt acagagtgat attattgaca cgcccgggcg acggatgggtg 420  
atccccctgg ccagtgacag tctgctgtca gataaagtct cccgtgaact ttaccgggtg 480  
gtgcatatcg gggatgaaag ctggcgcatg atgaccaccg atatggccag tgtgccggtc 540  
tccgttatcg gggaagaagt ggctgatctc agccaccgcg aaaatgacat caaaaacgcc 600  
  
attaacctga tgttctgggg aatatagaat tcgcggccgc actcgagata tctagacca 660  
gctttcttgt acaaagttgg cattataaga aagcattgct tatcaatttg ttgcaacgaa 720  
caggtcacta tcagtcaaaa taaaatcatt atttgccatc cagctgcagc tctggcccgt 780  
gtctcaaaat ctctgatgtt acattgcaca agataaaaat atatcatcat gaacaataaa 840  
actgtctgct tacataaaca gtaatacaag ggggtgttatg agccatattc aacgggaaac 900  
gtcgaggccg cgattaaatt ccaacatgga tgctgattta tatgggtata aatgggctcg 960  
cgataatgct gggcaatcag gtgcgacaat ctatcgcttg tatgggaagc ccgatgcgcc 1020  
agagttgttt ctgaaacatg gcaaaggtag cgttgccaat gatgttacag atgagatggt 1080  
cagactaaac tggctgacgg aatttatgcc tcttccgacc atcaagcatt ttatccgtac 1140  
tcctgatgat gcatggttac tcaccactgc gatccccgga aaaacagcat tccaggtatt 1200  
agaagaatat cctgattcag gtgaaaatat tgttgatgcg ctggcagtgt tcctgcgccg 1260  
gttgcatcgc attcctgttt gtaattgtcc ttttaacagc gatcgcgat ttcgtctcgc 1320  
tcaggcgcaa tcacgaatga ataacggttt ggttgatgcg agtgattttg atgacgagcg 1380  
taatggctgg cctgttgaac aagtctggaa agaaatgcat aaacttttgc cattctcacc 1440  
ggattcagtc gtcactcatg gtgatttctc acttgataac cttatttttg acgaggggaa 1500  
attaataggt tgtattgatg ttggacgagt cggaatcgca gaccgatacc aggatcctgc 1560  
catcctatgg aactgcctcg gtgagttttc tccttcatta cagaaacggc tttttcaaaa 1620  
atatggtatt gataatcctg atatgaataa attgcagttt catttgatgc tcgatgagtt 1680  
tttctaata gaattggtta attgggttgta acattattca gattgggccc cgttccactg 1740  
agcgtcagac cccgtagaaa agatcaaagg atcttcttga gatccttttt ttctgcgcgt 1800  
aatctgctgc ttgcaaacia aaaaaccacc gctaccagcg gtggtttggt tgccggatca 1860  
agagctacca actctttttc cgaaggtaac tggcttcagc agagcgcaga taccaaatac 1920  
tgttcttcta gtgtagccgt agttaggcca ccacttcaag aactctgtag caccgcctac 1980

B1

atacctcgct ctgctaatec tgttaccagt ggctgctgcc agtggcgata agtcgtgtct 2040  
taccgggttg gactcaagac gatagttacc ggataaggcg cagcggtcgg gctgaacggg 2100  
gggttcgtgc acacagccca gcttggagcg aacgacctac accgaactga gataacctaca 2160  
gcgtgagcta tgagaaagcg ccacgcttcc cgaagggaga aaggcggaca ggtatccggt 2220  
aagcggcagg gtcggaacag gagagcgcac gagggagctt ccagggggaa acgcctggta 2280  
tctttatagt cctgtcgggt ttcgccacct ctgacttgag cgtcgatttt tgtgatgctc 2340  
gtcagggggg cggagcctat ggaaaaacgc cagcaacgcg gcctttttac ggttcctggc 2400  
cttttgctgg ccttttgctc acatgttctt tctgctgta tcccctgatt ctgtggataa 2460  
ccgtattacc gctagcatgg atctcgggga cgtctaacta ctaagcgaga gtaggggaact 2520  
gccaggcatc aaataaaaacg aaaggctcag tcggaagact gggcctttcg ttttatctgt 2580  
tgtttgctcg tgaacgctct cctgagtagg acaaatccgc cgggagcgga tttgaacggt 2640  
gtgaagcaac ggcccggagg gtggcgggca ggacgcccgc cataaactgc caggcatcaa 2700  
actaagcaga aggccatc 2718

<210> 120

<211> 2723

<212> DNA

<213> pENTR3C

<220>

<221> gene

<222> (67)..(166)

<223> attL1

<220>

<221> gene

<222> (327)..(632)

<223> ccdB

<220>

<221> gene

<222> (661)..(760)

<223> attL2

<220>

<221> gene

<222> (883) .. (1692)

<223> KmR

<220>

<221> gene

<222> (1797) .. (2370)

<223> ori

B1 <400> 120

ctgacggatg gccttttttgc gtttctacaa actcttcctg ttagttagtt acttaagctc 60  
gggccccaaa taatgatttt attttgactg atagtgaacct gttcgttgca acaaattgat 120  
aagcaatgct tttttataat gccaaactttg tacaaaaaag caggctcttt aaaggaacca 180  
attcagtcga ctggatccgg taccgaattc gatcgcttac taaaagccag ataacagtat 240  
gcgtatttgc gcgctgattt ttgcggtata agaatatata ctgatatgta taccgaagt 300  
atgtcaaaaa gaggtgtgct tctagaatgc agtttaaggt ttacacctat aaaagagaga 360  
gccgttatcg tctgtttgtg gatgtacaga gtgatattat tgacacgccg gggcgacgga 420  
tggtgatccc cctggccagt gcacgtctgc tgtcagataa agtctcccg gaactttacc 480  
cgggtggtgca tatcggggat gaaagctggc gcatgatgac caccgatatg gccagtgtgc 540  
cggctctccgt tatcggggaa gaagtggctg atctcagcca ccgcgaaaat gacatcaaaa 600  
acgccattaa cctgatgttc tggggaatat agaattcgcg gccgcactcg agatatctag 660  
accagcttt cttgtacaaa gttggcatta taagaaagca ttgcttatca atttgttgca 720  
acgaacaggt cactatcagt caaaataaaa tcattatttg ccatccagct gcagctctgg 780  
cccgtgtctc aaaatctctg atgttacatt gcacaagata aaaatatatc atcatgaaca 840  
ataaaaactgt ctgcttacat aaacagtaat acaaggggtg ttatgagcca tattcaacgg 900  
gaaacgtcga ggccgcgatt aaattccaac atggatgctg atttatatgg gtataaatgg 960  
gctcgcgata atgtcgggca atcaggtgcg acaatctatc gcttgtatgg gaagcccgat 1020  
gcgccagagt tgtttctgaa acatggcaaa ggtagcggtt ccaatgatgt tacagatgag 1080  
atggtcagac taaactggct gacggaattt atgcctcttc cgaccatcaa gcattttatc 1140

cgctactcctg atgatgcatg gttactcacc actgcgatcc ccggaaaaaac agcattccag 1200  
gtattagaag aatatcctga ttcagggtgaa aatattgttg atgcgctggc agtggttcctg 1260  
cgccggttgc attcgattcc tgtttgtaat tgtcctttta acagcgatcg cgtatttcgt 1320  
ctcgctcagg cgcaatcacg aatgaataac ggtttggttg atgcgagtga ttttgatgac 1380  
gagcgtaatg gctggcctgt tgaacaagtc tggaaagaaa tgcataaact tttgccattc 1440  
tcaccggatt cagtcgtcac tcatgggtgat ttctcacttg ataaccttat ttttgacgag 1500  
gggaaattaa taggttgat tgaatgttga cgagtcggaa tcgcagaccg ataccaggat 1560  
cttgccatcc tatggaactg cctcggtgag ttttctcctt cattacagaa acggcttttt 1620  
caaaaatatg gtattgataa tcctgatatg aataaattgc agtttcattt gatgctcgat 1680  
gagtttttct aatcagaatt ggttaattgg ttgtaacatt attcagattg ggccccgttc 1740  
cactgagcgt cagaccccgat agaaaagatc aaaggatctt cttgagatcc tttttttctg 1800  
cgcgtaatct gctgcttgca aacaaaaaaa ccaccgctac cagcggtggt ttgtttgccg 1860  
gatcaagagc taccaactct ttttccgaag gtaactggct tcagcagagc gcagatacca 1920  
aatactgttc ttctagtgtg gccgtagtta ggccaccact tcaagaactc tgtagcaccg 1980  
cctacatacc tcgctctgct aatcctgtta ccagtggctg ctgccagtgg cgataagtcg 2040  
tgtcttaccg ggttggtgactc aagacgatag ttaccggata aggcgcagcg gtcgggctga 2100  
acgggggggtt cgtgcacaca gccagcttg gagcgaacga cctacaccga actgagatac 2160  
ctacagcgtg agctatgaga aagcgccacg cttcccgaag ggagaaaggc ggacaggtat 2220  
ccggtaaagc gcaggggtcgg aacaggagag cgcacgaggg agcttccagg gggaaacgcc 2280  
tggtatcttt atagtctgtt cgggttttcg cacctctgac ttgagcgtcg atttttgtga 2340  
tgctcgtcag gggggcggag cctatggaaa aacgccagca acgcggcctt tttacggttc 2400  
ctggcctttt gctggccttt tgctcacatg ttctttcctg cgttatcccc tgattctgtg 2460  
gataaccgta ttaccgctag catggatctc ggggacgtct aactactaag cgagagtagg 2520  
gaactgccag gcatcaaata aaacgaaagg ctcatcgga agactgggccc tttcgtttta 2580  
tctgttgttt gtcgggtgaac gctctcctga gtaggacaaa tccgccggga gcggatttga 2640  
acgttgtgaa gcaacggccc ggagggtggc gggcaggacg cccgccataa actgccaggc 2700  
atcaaactaa gcagaaggcc atc 2723

<210> 121

<211> 2720

<212> DNA

<213> pENTR4

<220>

<221> gene

<222> (67)..(166)

<223> attL1

<220>

<221> gene

<222> (324)..(629)

<223> ccdB

<220>

<221> gene

<222> (658)..(757)

<223> attL2

<220>

<221> gene

<222> (880)..(1689)

<223> KmR

<220>

<221> gene

<222> (1794)..(2367)

<223> ori

<400> 121

ctgacggatg gcctttttgc gtttctacaa actcttctg ttagttagtt acttaagctc 60  
gggccccaaa taatgatattt attttgactg atagtgacct gttcgttgca acaaattgat 120  
aagcaatgct tttttataat gccaaacttg tacaaaaaag caggctccac catgggaacc 180  
aattcagtcg actggatccg gtaccgaatt cgcttactaa aagccagata acagtatgcg 240  
tatttgcgcg ctgatttttg cggtataaga atatatactg atatgtatac ccgaagtatg 300

tcaaaaagag gtgtgcttct agaatgcagt ttaaggttta cacctataaa agagagagcc 360  
gttatcgctct gtttgtggat gtacagagtg atattattga cacgcccggg cgacggatgg 420  
tgatccccct ggccagtgca cgtctgctgt cagataaagt ctcccgtaaa ctttaccggg 480  
tggtgcatat cggggatgaa agctggcgca tgatgaccac cgatatggcc agtgtgccgg 540  
tctccgttat cggggaagaa gtggctgac tcagccaccg cgaaaatgac atcaaaaacg 600  
ccattaacct gatgttctgg ggaatataga attcgcggcc gcactcgaga tatctagacc 660  
cagctttctt gtacaaagtt ggcattataa gaaagcattg cttatcaatt tggtgcaacg 720  
aacaggtcac tatcagtcaa aataaaatca ttatttgcca tccagctgca gctctggccc 780  
gtgtctcaaa atctctgatg ttacattgca caagataaaa atatatcatc atgaacaata 840  
aaactgtctg cttacataaa cagtaatata aggggtgtta tgagccatat tcaacgggaa 900  
acgtcgaggc cgcgattaaa ttccaacatg gatgctgatt tatatgggta taaatgggct 960  
cgcgataatg tccggcaatc aggtgcgaca atctatcgct tgtatgggaa gcccgatgcg 1020  
ccagagttgt ttctgaaaca tggcaaaggc agcgttgcca atgatgttac agatgagatg 1080  
gtcagactaa actggctgac ggaatttatg cctcttccga ccatcaagca ttttatccgt 1140  
actcctgggtg atgcatgggt actcaccact gcgatccccg gaaaaacagc attccaggta 1200  
ttagaagaat atcctgatcc aggtgaaaat attgttgatg cgctggcagt gttcctgcgc 1260  
cggttgcatt cgattcctgt ttgtaattgt ccttttaaca gcgatcgcgt atttcgtctc 1320  
gtcaggcgcc aatcacgaat gaataacggt ttggttgatg cgagtgattt tgatgacgag 1380  
cgtaatggct ggccctgttg acaagtctgg aaagaaatgc ataaactttt gccattctca 1440  
ccggattcag tcgtcactca tggtgatttc tcaattgata acctattttt tgacgagggg 1500  
aaattaatag gttgtattga tgttggacga gtcggaatcg cagaccgata ccaggatctt 1560  
gccatcctat ggaactgcct cggtgagttt tctccttcat tacagaaacg gctttttcaa 1620  
aaatatggta ttgataatcc tgatatgaat aaattgcagt ttcatttgat gctcgatgag 1680  
tttttctaata cagaattggg taattgggtg taacattatt cagattgggc cccgttccac 1740  
tgagcgtcag accccgtaga aaagatcaaa ggatcttctt gagatccttt ttttctgcgc 1800  
gtaatctgct gcttgcaaac aaaaaaacca ccgctaccag cggtggtttg tttgccggat 1860  
caagagctac caactctttt tccgaaggta actggcttca gcagagcgca gataccaaat 1920  
actgttcttc tagttagacc gtagttaggc caccacttca agaactctgt agcaccgcct 1980  
acatacctcg ctctgctaata cctgttaccg gtggctgctg ccagtggcga taagtcgtgt 2040  
cttaccgggt tggactcaag acgatagtta ccggataagg cgacgcggtc gggctgaacg 2100  
gggggttcgt gcacacagcc cagcttggag cgaacgacct acaccgaact gagataccta 2160

B1



cagcgtgagc tatgagaaag cgccacgctt cccgaaggga gaaaggcgga caggtatccg 2220  
 gtaagcggca gggtcggaac aggagagcgc acgagggagc ttccaggggg aaacgcctgg 2280  
 tatctttata gtcctgtcgg gtttcgccac ctctgacttg agcgtcgatt tttgtgatgc 2340  
 tcgtcagggg ggcggagcct atggaaaaac gccagcaacg cggccttttt acggttcctg 2400  
 gccttttgcg ggccttttgc tcacatgttc tttcctgcgt tatccctga ttctgtggat 2460  
 aaccgtatta ccgctagcat ggatctcggg gacgtctaac tactaagcga gagtagggaa 2520  
 ctgccaggca tcaaataaaa cgaaaggctc agtcggaaga ctgggccttt cgttttatct 2580  
 gttgtttgtc ggtgaacgct ctctgagta ggacaaatcc gccgggagcg gatttgaacg 2640  
 ttgtgaagca acggcccgga ggggtggcggg caggacgccc gccataaact gccaggcatc 2700  
 aaactaagca gaaggccatc 2720

<210> 122

<211> 2720

<212> DNA

<213> pENTR5

<220>

<221> gene

<222> (67) .. (166)

<223> attL1

<220>

<221> gene

<222> (324) .. (629)

<223> ccdB

<220>

<221> gene

<222> (658) .. (757)

<223> attL2

<220>

B1

<221> gene

<222> (880) .. (1689)

<223> KmR

<220>

<221> gene

<222> (1794) .. (2367)

<223> ori

<400> 122

ctgacggatg gcctttttgc gtttctacaa actcttctctg ttagttagtt acttaagctc 60  
gggccccaaa taatgatttt attttgactg atagtgcctt gttcgttgca acaaattgat 120  
aagcaatgct tttttataat gccaaacttg tacaataaag caggctttca tatgggaacc 180  
aattcagtcg actggatccg gtaccgaatt cgcttactaa aagccagata acagtatgcg 240  
tatttgccgcg ctgatttttg cgggtataaga atatatactg atatgtatac ccgaagtatg 300  
tcaaaaagag gtgtgcttct agaatgcagt ttaaggttta cacctataaa agagagagcc 360  
gttatcgtct gtttgtggat gtacagagtg atattattga cacgcccggg cgacggatgg 420  
tgatccccct ggccagtgcg cgtctgctgt cagataaagt ctcccgtaaa ctttaccgcg 480  
tggtgcatat cggggatgaa agctggcgca tgatgaccac cgatatggcc agtgtgccgg 540  
tctccgttat cggggaagaa gtggctgacg tcagccaccg cgaaaatgac atcaaaaacg 600  
ccattaacct gatgttcttg ggaatataga attcgcggcc gactcgaga tatctagacc 660  
cagctttctt gtacaaagtt ggcattataa gaaagcattg cttatcaatt tggtgcaacg 720  
aacaggtcac tatcagtcaa aataaaatca ttatttgcca tccagctgca gctctggccc 780  
gtgtctcaaa atctctgatg ttacattgca caagataaaa atatatcatc atgaacaata 840  
aaactgtctg cttacataaa cagtaataca aggggtgtta tgagccatat tcaacgggaa 900  
acgtcgaggc cgcgattaaa ttccaacatg gatgctgatt tatatgggta taaatgggct 960  
cgcgataatg tcgggcaatc aggtgcgaca atctatcgct tgtatgggaa gcccgatgcg 1020  
ccagagttgt ttctgaaaca tggcaaagggt agcggttgcca atgatgttac agatgagatg 1080  
gtcagactaa actggctgac ggaatttatg cctcttccga ccatcaagca ttttatccgt 1140  
actcctgatg atgcatgggt actcaccact gcgatccccg gaaaaacagc attccaggta 1200  
ttagaagaat atcctgattc aggtgaaaat attgttgatg cgctggcagt gttcctgcgc 1260  
cggttgcaat cgattcctgt ttgtaattgt ccttttaaca gcgatcgcg atttcgtctc 1320

gctcaggcgc aatcacgaat gaataacggg ttggttgatg cgagtgatgt tgatgacgag 1380  
cgtaatggct ggcctgttga acaagtctgg aaagaaatgc ataaactttt gccattctca 1440  
ccggattcag tcgtcactca tgggtgatttc tcaattgata accttatttt tgacgagggg 1500  
aaattaatag gttgtattga tgggtggacga gtcggaatcg cagaccgata ccaggatctt 1560  
gccatcctat ggaactgcct cgggtgagttt tctccttcat tacagaaacg gctttttcaa 1620  
aaatatggta ttgataatcc tgatatgaat aaattgcagt ttcatttgat gctcgatgag 1680  
tttttctaata cagaattggg taattgggtg taacattatt cagattgggc cccgttccac 1740  
tgagcgtcag accccgtaga aaagatcaaa ggatcttctt gagatccttt ttttctgcgc 1800  
gtaatctgct gcttgcaaac aaaaaaacca ccgctaccag cgggtggtttg tttgccggat 1860  
caagagctac caactctttt tccgaaggta actggcttca gcagagcgca gataccaaat 1920  
actgttcttc tagtgtagcc gtagttaggc caccacttca agaactctgt agcaccgcct 1980  
acatacctcg ctctgctaata cctgttacca gtggctgctg ccagtggcga taagtcgtgt 2040  
cttaccgggt tggactcaag acgatagtta ccggataagg cgcagcggc gggctgaacg 2100  
gggggttcgt gcacacagcc cagcttggag cgaacgacct acaccgaact gagataccta 2160  
cagcgtgagc tatgagaaaag cgccacgctt ccgaaggga gaaaggcga caggtatccg 2220  
gtaagcggca gggtcggaac aggagagcgc acgagggagc ttccaggggg aaacgcctgg 2280  
tatctttata gtctgtcgg gtttcgccac ctctgacttg agcgtcgatt tttgtgatgc 2340  
tcgtcagggg ggcggagcct atggaaaaac gccagcaacg cggccttttt acggttctctg 2400  
gccttttgct ggccttttgc tcacatgttc tttcctgctg tatccccctga ttctgtggat 2460  
aaccgtatta ccgctagcat ggatctcggg gacgtctaac tactaagcga gagtagggaa 2520  
ctgccaggca tcgaataaaa cgaaaggctc agtcggaaga ctgggccttt cgttttatct 2580  
gttgtttgct ggtgaacgct ctctgagta ggacaaatcc gccgggagcg gatttgaacg 2640  
ttgtgaagca acggcccga ggggtggcggg caggacgcc gccataaact gccaggcatc 2700  
aaactaagca gaaggccatc 2720

<210> 123

<211> 2717

<212> DNA

<213> pENTR6

<220>

<221> gene

<222> (67)..(166)

<223> attL1

<220>

<221> gene

<222> (321)..(626)

<223> ccdB

<220>

<221> gene

<222> (655)..(754)

<223> attL2

<220>

<221> gene

<222> (877)..(1686)

<223> KmR

<220>

<221> gene

<222> (1791)..(2364)

<223> ori

<400> 123

ctgacggatg gcctttttgc gtttctacaa actcttctcg ttagttagtt acttaagctc 60  
gggccccaaa taatgatttt attttgactg atagtgcact gttcgttgca acaaattgat 120  
aagcaatgct tttttataat gccaaacttg tacaaaaaag caggctgcat gcgaaccaat 180  
tcagtcgact ggatccggta ccgaattcgc ttactaaaag ccagataaca gtatgcgtat 240  
ttgcgcgctg atttttgctg tataagaata tatactgata tgtatacccg aagtatgtca 300  
aaaagagggtg tgcttctaga atgcagttta aggtttacac ctataaaaga gagagccgtt 360  
atcgctctgtt tgtggatgta cagagtgata ttattgacac gcccgggcga cggatggtga 420  
tccccctggc cagtgcacgt ctgctgtcag ataaagtctc ccgtgaactt taccgggtgg 480

tgcatatcgg ggatgaaagc tggcgcatga tgaccaccga tatggccagt gtgccggtct 540  
ccgttatcgg ggaagaagtg gctgatctca gccaccgcga aaatgacatc aaaaacgccca 600  
ttaacctgat gttctgggga atatagaatt cgcggccgca ctcgagatat ctagaccag 660  
ctttcttgta caaagttggc attataagaa agcattgctt atcaatttgt tgcaacgaac 720  
aggtcactat cagtcaaaat aaaatcatta tttgccatcc agctgcagct ctggcccgtg 780  
tctcaaaatc tctgatgtta cattgcacaa gataaaaata tatcatcatg aacaataaaa 840  
ctgtctgctt acataaacag taatacaagg ggtgttatga gccatattca acgggaaacg 900  
tcgaggccgc gattaaattc caacatggat gctgatttat atgggtataa atgggctcgc 960  
gataatgtcg ggcaatcagg tgcgacaatc tatcgcttgt atgggaagcc cgatgcgcca 1020  
gagttgtttc tgaaacatgg caaaggtagc gttgccaatg atgttacaga tgagatggtc 1080  
B1 agactaaact ggctgacgga atttatgcct cttccgacca tcaagcattt tatccgtact 1140  
cctgatgatg catggttact caccactgcg atccccggaa aaacagcatt ccaggtatta 1200  
gaagaatatc ctgattcagg tgaaaatatt gttgatgcgc tggcagtgtt cctgcgccgg 1260  
ttgcattcga ttctgtttg taattgtcct tttaacagcg atcgcgattt tcgtctcgct 1320  
caggcgcaat cacgaatgaa taacggtttg gttgatgcga gtgattttga tgacgagcgt 1380  
aatggctggc ctgttgaaca agtctggaaa gaaatgcata aacttttgcc attctcaccg 1440  
gattcagtcg tcaactcatg tgatttctca cttgataacc ttatttttga cgaggggaaa 1500  
ttaatagggt gtattgatgt tggacgagtc ggaatcgcag accgatacca ggatcttgcc 1560  
atcctatgga actgcctcgg tgagttttct ccttcattac agaaacggct ttttcaaaaa 1620  
tatgggtattg ataatcctga tatgaataaa ttgcagtttc atttgatgct cgatgagttt 1680  
ttctaatacag aattgggttaa ttggttgtaa cattattcag attgggcccc gttccactga 1740  
gcgtcagacc ccgtagaaaa gatcaaagga tcttcttgag atcctttttt tctgcgcgta 1800  
atctgctgct tgcaaacaaa aaaaccaccg ctaccagcgg tggtttgttt gccggatcaa 1860  
gagctaccaa ctctttttcc gaaggtaact ggcttcagca gagcgcagat accaaatact 1920  
gttcttctag tgtagccgta gttaggccac cacttcaaga actctgtagc accgcctaca 1980  
tacctcgctc tgctaatcct gttaccagtg gctgctgcca gtggcgataa gtcgtgtctt 2040  
accgggttgg actcaagacg atagttaccg gataaggcgc agcggtcggg ctgaacgggg 2100  
ggttcgtgca cacagcccag cttggagcga acgacctaca ccgaactgag atacctacag 2160  
cgtgagctat gagaaagcgc cacgcttccc gaagggagaa aggcggacag gtatccggta 2220  
agcggcaggg tcggaacagg agagcgcacg agggagcttc cagggggaaa cgcttggtat 2280  
ctttatagtc ctgtcgggtt tcgccacctc tgacttgagc gtcgattttt gtgatgctcg 2340

tcaggggggc ggagcctatg gaaaaacgcc agcaacgcgg ccttttttacg gttcctggcc 2400  
ttttgctggc cttttgctca catgttcttt cctgcgttat cccctgattc tgtggataac 2460  
cgtattaccg ctagcatgga tctcggggac gtctaactac taagcgagag tagggaactg 2520  
ccaggcatca aataaaacga aaggctcagt cggaagactg ggcctttcgt tttatctgtt 2580  
gtttgtcggg gaacgctctc ctgagtagga caaatccgcc gggagcggat ttgaacgttg 2640  
tgaagcaacg gcccgaggag tggcgggcag gacgcccgcc ataaactgcc aggcataaaa 2700  
ctaagcagaa ggccatc 2717

<210> 124

<211> 2738

<212> DNA

<213> pENTR7

<220>

<221> gene

<222> (67)..(166)

<223> attL1

<220>

<221> gene

<222> (342)..(647)

<223> ccdB

<220>

<221> gene

<222> (676)..(775)

<223> attL2

<220>

<221> gene

<222> (898)..(1707)

<223> KmR

B1

<220>

<221> gene

<222> (1812)..(2385)

<223> ori

<400> 124

ctgacggatg gcctttttgc gtttctacaa actcttctctg ttagttagtt acttaagctc 60  
gggccccaaa taatgatttt attttgactg atagtgacct gttcgttgca acaaattgat 120  
aagcaatgct tttttataat gccaaactttg tacaaaaaag caggctttga aaacctgtat 180  
tttcaaggaa ccgtttcatg catcgctcgac tggatccggt accgaattcg cttactaaaa 240  
gccagataac agtatgcgta tttgcgcgct gatttttgcg gtataagaat atatactgat 300  
atgtataccc gaagtatgtc aaaaagaggt gtgcttctag aatgcagttt aagggtttaca 360  
cctataaaag agagagccgt tatcgctctgt ttgtggatgt acagagtgat attattgaca 420  
cgcccgggcg acggatagtg atccccctgg ccagtgcacg tctgctgtca gataaagtct 480  
cccggtgaact ttaccgggtg gtgcatatcg gggatgaaag ctggcgcgatg atgaccaccg 540  
atatggccag tgtgccggtc tccgttatcg gggagaagaat ggctgatctc agccaccgcg 600  
aaaatgacat caaaaacgcc attaacctga tgttctgggg aatatagaat tcgcggccgc 660  
actcgagata tctagacca gctttcttgt acaaagttgg cattataaga aagcattgct 720  
tatcaatttg ttgcaacgaa caggtcacta tcagtcaaaa taaaatcatt atttgccatc 780  
cagctgcagc tctggcccgt gtctcaaaat ctctgatgtt acattgcaca agataaaaaat 840  
atatcatcat gaacaataaa actgtctgct tacataaaca gtaatacaag ggggtgttatg 900  
agccatattc aacgggaaac gtcgaggccg cgattaaatt ccaacatgga tgctgattta 960  
tatgggtata aatgggctcg cgataatgtc gggcaatcag gtgcgacaat ctatcgcttg 1020  
tatgggaagc ccgatgcgcc agagttgttt ctgaaacatg gcaaaggtag cgttgccaat 1080  
gatgttacag atgagatggt cagactaaac tggtgacgg aatttatgcc tcttccgacc 1140  
atcaagcatt ttatccgtac tctgatgat gcatggttac tcaccactgc gatccccgga 1200  
aaaacagcat tccagggtatt agaagaatat cctgattcag gtgaaaatat tgttgatgcg 1260  
ctggcagtggt tcttgcgccg gttgcattcg attcctgttt gtaattgtcc ttttaacagc 1320  
gatcgcgtat ttcgtctcgc tcaggcgcaa tcacgaatga ataacggttt gggttgatgcg 1380  
agtgattttg atgacgagcg taatggctgg cctgttgaac aagtctggaa agaaatgcat 1440  
aaacttttgc cattctcacc ggattcagtc gtcactcatg gtgatttctc acttgataac 1500

cttatttttg acgaggggaa attaataggt tgtattgatg ttggacgagt cggaatcgca 1560  
gaccgatacc aggatcttgc catcctatgg aactgcctcg gtgagttttc tccttcatta 1620  
cagaaacggc tttttcaaaa atatggtatt gataatcctg atatgaataa attgcagttt 1680  
catttgatgc tcgatgagtt tttctaataca gaattgggta attggttgta acattattca 1740  
gattggggcc cggtccactg agcgtcagac cccgtagaaa agatcaaagg atcttcttga 1800  
gacccctttt ttctgcgcgt aatctgctgc ttgcaaaca aaaaaccacc gctaccagcg 1860  
gtggtttggt tgccggatca agagctacca actctttttc cgaaggtaac tggcttcagc 1920  
agagcgcaga taccaaatac tgttcttcta gtgtagcgt agttaggcca ccacttcaag 1980  
aactctgtag caccgcctac atacctcgct ctgctaatac tgttaccagt ggctgctgcc 2040  
agtggcgata agtcgtgtct taccgggttg gactcaagac gatagttacc ggataaggcg 2100  
cagcggtcgg gctgaacggg gggttcgtgc acacagccca gcttggagcg aacgacctac 2160  
accgaactga gataacctaca gcgtgagcta tgagaaagcg ccacgcttcc cgaagggaga 2220  
aaggcggaca ggtatccggt aagcggcagg gtcggaacag gagagcgcac gagggagctt 2280  
ccagggggaa acgcctggta tctttatagt cctgtcgggt ttccgccacct ctgacttgag 2340  
cgtcgatttt tgtgatgctc gtcagggggg cggagcctat ggaaaaacgc cagcaacgcg 2400  
gcctttttac ggttcttggc cttttgctgg ccttttgctc acatgttctt tcctgcgtta 2460  
tccccgtatt ctgtggataa ccgtattacc gctagcatgg atctcgggga cgtctaacta 2520  
ctaagcgaga gtagggaact gccaggcatc aaataaaacg aaaggctcag tcggaagact 2580  
gggcctttcg ttttatctgt tgtttgctcg tgaacgctct cctgagtagg acaaatccgc 2640  
cgggagcgga tttgaacgtt gtgaagcaac ggcccggagg gtggcgggca ggacgcccgc 2700  
cataaactgc caggcatcaa actaagcaga aggccatc 2738

<210> 125

<211> 2735

<212> DNA

<213> pENTR8

<220>

<221> gene

<222> (67)..(166)

<223> attL1



<220>

<221> gene

<222> (339) .. (644)

<223> ccdB

<220>

<221> gene

<222> (673) .. (772)

<223> attL2

<220>

<221> gene

<222> (895) .. (1704)

<223> KmR

<220>

<221> gene

<222> (1809) .. (2382)

<223> ori

<400> 125

ctgacggatg gcctttttgc gtttctacaa actcttccctg ttagttagtt acttaagctc 60  
gggccccaaa taatgatttt attttgactg atagtgacct gttcgttgca acaaattgat 120  
aagcaatgct tttttataat gccaaactttg tacaaaaaag caggctttga aaacctgtat 180  
tttcaaggaa ccatggacct agtcgactgg atccgggtacc gaattcgctt actaaaagcc 240  
agataacagt atgcgtattt gcgcgctgat ttttgcggtg taagaatata tactgatatg 300  
tatacccgaa gtatgtcaaa aagaggtgtg cttctagaat gcagtttaag gtttacacct 360  
ataaaaagaga gagccgttat cgtctgtttg tggatgtaca gagtgatatt attgacacgc 420  
ccggggcgacg gatagtgatc cccctggcca gtgcacgtct gctgtcagat aaagtctccc 480  
gtgaacttta cccggtggtg catatcgggg atgaaagctg gcgcatgatg accaccgata 540  
tggccagtgt gccggtctcc gttatcgggg aagaagtggc tgatctcagc caccgcgaaa 600  
atgacatcaa aaacgccatt aacctgatgt tctggggaat atagaattcg cggccgcact 660

cgagatatct agaccagct ttcttgtaca aagttggcat tataagaaag cattgcttat 720  
caatttggtg caacgaacag gtcactatca gtcaaaataa aatcattatt tgccatccag 780  
ctgcagctct ggcccggtgc tcaaaatctc tgatgttaca ttgcacaaga taaaaatata 840  
tcatcatgaa caataaaact gtctgcttac ataaacagta atacaagggg tgttatgagc 900  
catattcaac gggaaacgtc gagggccgca ttaaattcca acatggatgc tgatttatat 960  
gggtataaat gggctcgcga taatgtcggg caatcagggt cgacaatcta tcgcttgtat 1020  
gggaagcccg atgcgccaga gttgtttctg aaacatggca aaggtagcgt tgccaatgat 1080  
gttacagatg agatggtcag actaaactgg ctgacggaat ttatgcctct tccgaccatc 1140  
aagcatttta tccgtactcc tgatgatgca tgggtactca ccaactgcgat ccccgaaaaa 1200  
acagcattcc aggtattaga agaatactct gattcagggtg aaaatattgt tgatgcgctg 1260  
gcagtgtccc tgcgcgggtt gcattcgatt cctgtttgta attgtccttt taacagcgat 1320  
cgcgtatttc gtctcgtcga ggcgcaatca cgaatgaata acgggtttggg tgatgcgagt 1380  
gattttgatg acgagcgtaa tggctggcct gttgaacaag tctggaaaga aatgcataaa 1440  
cttttgccat tctcaccgga ttcagtcgtc actcatgggtg atttctcact tgataacctt 1500  
atttttgacg aggggaaatt aataggttgt attgatgttg gacgagtcgg aatcgagac 1560  
cgataccagg atcttgccat cctatggaac tgcctcgggtg agttttctcc ttcattacag 1620  
aaacggcttt ttcaaaaata tggattgat aatcctgata tgaataaatt gcagtttcat 1680  
ttgatgctcg atgagttttt ctaatcagaa ttgggttaatt ggttgtaaca ttattcagat 1740  
tgggcccggt tccactgagc gtcagacccc gtagaaaaga tcaaaggatc ttcttgagat 1800  
cctttttttc tgcgcgtaat ctgctgcttg caaacaaaaa aaccaccgct accagcgggtg 1860  
gtttgtttgc cggatcaaga gctaccaact ctttttccga aggtaactgg cttcagcaga 1920  
gcgagatac caaatactgt tcttctagt tagccgtagt taggccacca cttcaagaac 1980  
tctgtagcac cgctacata cctcgtctctg ctaatcctgt taccagtggc tgctgccagt 2040  
ggcgataagt cgtgtcttac cgggttggac tcaagacgat agttaccgga taaggcgag 2100  
cggctcgggt gaacgggggg ttcgtgcaca cagcccagct tggagcgaac gacctacacc 2160  
gaactgagat acctacagcg tgagctatga gaaagcgcca cgcttcccga agggagaaag 2220  
gcggacaggt atccggtaag cggcaggggtc ggaacaggag agcgcacgag ggagcttcca 2280  
gggggaaacg cctggtatct ttatagtcct gtcgggtttc gccacctctg acttgagcgt 2340  
cgatttttgt gatgctcgtc agggggggcg agcctatgga aaaacgccag caacgcggcc 2400  
tttttacggt tcttggcctt ttgctggcct tttgctcaca tgttctttcc tgcgttatcc 2460  
cctgattctg tggataaccg tattaccgct agcatggatc tcggggacgt ctaactacta 2520

B1

agcgagagta gggaactgcc aggcataaaa taaaacgaaa ggctcagtcg gaagactggg 2580  
cctttcgttt tatctgttgt ttgtcgggtga acgctctcct gagtaggaca aatccgccgg 2640  
gagcggatttt gaacgttgtg aagcaacggc ccggaggggtg gcgggcagga cgccccccat 2700  
aaactgccag gcatcaaact aagcagaagg ccatc 2735

<210> 126

<211> 2735

<212> DNA

<213> pENTR9

<220>

<221> gene

<222> (67)..(166)

<223> attL1

<220>

<221> gene

<222> (339)..(644)

<223> ccdB

<220>

<221> gene

<222> (673)..(772)

<223> attL2

<220>

<221> gene

<222> (895)..(1704)

<223> KmR

<220>

<221> gene

B1

<222> (1809) .. (2382)

<223> ori

<400> 126

ctgacggatg gccttttttgc gtttctacaa actcttcctg ttagttagtt acttaagctc 60  
gggccccaaa taatgatttt attttgactg atagtgcct gttcgttgca acaaattgat 120  
aagcaatgct tttttataat gccaaacttg tacaaaaaag caggctttga aaacctgtat 180  
tttcaaggac atatgagatc tgtcgactgg atccggtacc gaattcgctt actaaaagcc 240  
agataacagt atgcgtatct gcgcgctgat ttttgcggtg taagaatata tactgatatg 300  
tatacccgaa gtatgtcaaa aagaggtgtg cttctagaat gcagtttaag gtttacacct 360  
ataaaagaga gagccgttat cgtctgtttg tggatgtaca gagtgatatt attgacacgc 420  
ccgggcgacg gatagtgatc cccctggcca gtgcacgtct gctgtcagat aaagtctccc 480  
gtgaacttta cccggtggtg catatcgggg atgaaagctg gcgcatgatg accaccgata 540  
tggccagtgt gccggtctcc gttatcgggg aagaagtggc tgatctcagc caccgcgaaa 600  
atgacatcaa aaacgccatt aacctgatgt tctggggaat atagaattcg cggccgcact 660  
cgagatatct agaccagct ttcttgatca aagttggcat tataagaaag cattgcttat 720  
caatttggtg caacgaacag gtcactatca gtcaaaataa aatcattatt tgccatccag 780  
ctgcagctct ggcccggtgc tcaaaatctc tgatgttaca ttgcacaaga taaaaatata 840  
tcatcatgaa caataaaact gtctgcttac ataaacagta atacaagggg tgttatgagc 900  
catattcaac gggaaacgtc gaggccgcga ttaaattcca acatggatgc tgatttatat 960  
gggtataaat gggctcgcga taatgtcggg caatcagggt cgacaatcta tcgcttgtat 1020  
gggaagcccg atgcgccaga gttgtttctg aaacatggca aaggtagcgt tgccaatgat 1080  
gttacagatg agatggtcag actaaactgg ctgacggaat ttatgcctct tccgaccatc 1140  
aagcatttta tccgtactcc tgatgatgca tggttactca ccactgcgat ccccgaaaaa 1200  
acagcattcc aggtattaga agaatactct gattcagggtg aaaatattgt tgatgcgctg 1260  
gcagtgtccc tgcgcgggtt gcattcgatt cctgtttgta attgtccttt taacagcgat 1320  
cgcgtatttc gtctcgctca ggcgcaatca cgaatgaata acggtttggt tgatgcgagt 1380  
gattttgatg acgagcgtaa tggctggcct gttgaacaag tctggaaaga aatgcataaa 1440  
cttttgccat tctaccgga ttcagtcgtc actcatggtg atttctcact tgataacctt 1500  
atttttgacg aggggaaatt aataggttgt attgatgttg gacgagtcgg aatcgagac 1560  
cgataccagg atcttgccat cctatggaac tgcctcgggtg agttttctcc ttcattacag 1620  
aaacggcttt ttcaaaaata tggatttgat aatcctgata tgaataaatt gcagtttcat 1680

B1

ttgatgctcg atgagttttt ctaatcagaa ttgggtaatt ggttgtaaca ttattcagat 1740  
 tgggccccgt tccactgagc gtcagacccc gtagaaaaga tcaaaggatc ttcttgagat 1800  
 cctttttttc tgcgcgtaat ctgctgcttg caaacaaaaa aaccaccgct accagcgggtg 1860  
 gtttgtttgc cggatcaaga gctaccaact ctttttccga aggtaactgg cttcagcaga 1920  
 gcgcagatac caaatactgt tcttctagt tagccgtagt taggccacca cttcaagaac 1980  
 tctgtagcac cgcctacata cctcgctctg ctaatcctgt taccagtggc tgctgccagt 2040  
 ggcgataagt cgtgtcttac cgggttggac tcaagacgat agttaccgga taaggcgcag 2100  
 cggtcgggct gaacgggggg ttctgtcaca cagcccagct tggagcgaac gacctacacc 2160  
 gaactgagat acctacagcg tgagctatga gaaagcgcca cgcttcccga agggagaaaag 2220  
 gcggacaggt atccggtaag cggcaggggc ggaacaggag agcgcacgag ggagcttcca 2280  
 gggggaaaacg cctggtatct ttatagtct gtcgggtttc gccacctctg acttgagcgt 2340  
 cgatttttgt gatgctcgtc agggggggcg agcctatgga aaaacgccag caacgcggcc 2400  
 tttttacggt tcttggcctt ttgctggcct tttgctcaca tggtctttcc tgcgttatcc 2460  
 cctgattctg tggataaccg tattaccgct agcatggatc tcggggacgt ctaactacta 2520  
 agcgagagta gggaactgcc aggcatacaa taaaacgaaa ggctcagtcg gaagactggg 2580  
 cctttcgttt tatctgttgt ttgtcgggtga acgctctcct gagtaggaca aatccgccgg 2640  
 gagcggattt gaacgttgtg aagcaacggc ccggaggggtg gcgggcagga cgcccgccat 2700  
 aaactgccag gcatcaaact aagcagaagg ccac 2735

<210> 127

<211> 2738

<212> DNA

<213> pENTR10

<220>

<221> gene

<222> (67) .. (166)

<223> attL1

<220>

<221> gene

<222> (342) .. (647)

<223> ccdB

<220>

<221> gene

<222> (676)..(775)

<223> attL2

<220>

<221> gene

<222> (898)..(1707)

<223> KmR

<220>

<221> gene

<222> (1812)..(2385)

<223> ori

<400> 127  
ctgacggatg gcctttttgc gtttctacaa actcttctctg ttagttagtt acttaagctc 60  
gggccccaaa taatgatttt attttgactg atagtgcctt gttcgttgca acaaattgat 120  
aagcaatgct tttttataat gccaaacttg tacaaaaaag caggcttcga actaaggaaa 180  
tacttacata tgggaaccaa ttcagtcgac tggatccggt accgaattcg cttactaaaa 240  
gccagataac agtatgcgta tttgcgcgct gattttttgcg gtataagaat atatactgat 300  
atgtataccc gaagtatgtc aaaaagaggt gtgcttctag aatgcagttt aagggtttaca 360  
cctataaaaag agagagccgt tatcgtctgt ttgtggatgt acagagtgat attattgaca 420  
cgcccgggcg acggatgggt atccccctgg ccagtgcacg tctgctgtca gataaagtct 480  
cccgtgaact ttacccggtg gtgcatatcg gggatgaaag ctggcgcatg atgaccaccg 540  
atatggccag tgtgccggtc tccgttatcg gggaagaagt ggctgatctc agccaccgcg 600  
aaaatgacat caaaaacgcc attaacctga tgttctgggg aatatagaat tcgcggccgc 660  
actcgagata tctagacca gctttcttgt acaaagttgg cattataaga aagcattgct 720  
tatcaatttg ttgcaacgaa caggtcacta tcagtcaaaa taaaatcatt atttgccatc 780  
cagctgcagc tctggcccgt gtctcaaaat ctctgatggt acattgcaca agataaaaat 840

atatcatcat gaacaataaa actgtctgct tacataaaca gtaatacaag ggggtggtatg 900  
agccatattc aacgggaaac gtcgaggccg cgattaaatt ccaacatgga tgctgattta 960  
tatgggtata aatgggctcg cgataatgtc gggcaatcag gtgcgacaat ctatcgcttg 1020  
tatgggaagc ccgatgcgcc agagttgttt ctgaaacatg gcaaaggtag cgttgccaat 1080  
gatgttacag atgagatggg cagactaaac tggctgacgg aatttatgcc tcttcgcacc 1140  
atcaagcatt ttatccgtac tcctgatgat gcatgggttac tcaccactgc gatccccgga 1200  
aaaacagcat tccaggtatt agaagaatat cctgattcag gtgaaaatat tgttgatgcg 1260  
ctggcagtgt tcctgcgccg gttgcattcg attcctgttt gtaattgtcc ttttaacagc 1320  
gatcgcgat ttcgtctcgc tcaggcgcaa tcacgaatga ataacgggtt ggttgatgcg 1380  
agtgattttg atgacgagcg taatggctgg cctgttgaac aagtctggaa agaaatgcat 1440  
aaacttttgc cattctcacc ggattcagtc gtcactcatg gtgatttctc acttgataac 1500  
cttatttttg acgaggggaa attaataggt tgtattgatg ttggacgagt cggaatcgca 1560  
gaccgatacc aggatcttgc catcctatgg aactgcctcg gtgagtttcc tccttcatta 1620  
cagaaacggc tttttcaaaa atatgggtatt gataatcctg atatgaataa attgcagttt 1680  
catttgatgc tcgatgagtt tttctaataca gaattgggtta attggttgta acattattca 1740  
gattgggccc cgttccactg agcgtcagac cccgtagaaa agatcaaagg atcttcttga 1800  
gatccttttt ttctgcgcgt aatctgctgc ttgcaaacaa aaaaaccacc gctaccagcg 1860  
gtggtttgtt tgccggatca agagctacca actcttttcc cgaaggtaac tggcttcagc 1920  
agagcgcaga taccaaatac tgttcttcta gtgtagccgt agttaggcca ccacttcaag 1980  
aactctgtag caccgcctac atacctcgct ctgctaatec tgttaccagt ggctgctgcc 2040  
agtggcgata agtcgtgtct taccgggttg gactcaagac gatagttacc ggataaggcg 2100  
cagcggtcgg gctgaacggg gggttcgtgc acacagccca gcttgagcg aacgacctac 2160  
accgaactga gatactaca gcgtgagcta tgagaaagcg ccacgcttcc cgaagggaga 2220  
aaggcggaca ggtatccggt aagcggcagg gtcggaacag gagagcgcac gagggagctt 2280  
ccagggggaa acgcctggta tctttatagt cctgtcgggt ttcgccacct ctgacttgag 2340  
cgtcgatttt tgtgatgctc gtcagggggg cggagcctat ggaaaaacgc cagcaacgcg 2400  
gcctttttac ggttcctggc cttttgctgg ccttttgctc acatgttctt tcctgcgtta 2460  
tcccctgatt ctgtggataa ccgtattacc gctagcatgg atctcgggga cgtctaacta 2520  
ctaagcgaga gtagggaact gccaggcatc gaataaaacg aaaggctcag tcggaagact 2580  
gggcctttcg ttttatctgt tgtttgtcgg tgaacgctct cctgagtagg acaaatccgc 2640  
cgggagcgga tttgaacggt gtgaagcaac ggcccggagg gtggcgggca ggacgcccgc 2700

B1

cataaaactgc caggcatcaa actaagcaga aggccatc

2738

<210> 128

<211> 2744

<212> DNA

<213> pENTR11

<220>

<221> gene

<222> (67) .. (166)

<223> attL1

<220>

<221> gene

<222> (348) .. (653)

<223> ccdB

<220>

<221> gene

<222> (683) .. (781)

<223> attL2

<220>

<221> gene

<222> (904) .. (1713)

<223> KmR

<220>

<221> gene

<222> (1818) .. (2391)

<223> ori

B1



<400> 128  
ctgacggatg gcctttttgc gtttctacaa actcttctctg ttagttagtt acttaagctc 60  
gggccccaaa taatgatttt attttgactg atagtgcctt gttcgttgca acaaattgat 120  
aagcaatgct tttttataat gccaaactttg tacaaaaaag caggcttcga aggagataga 180  
accaattctc taaggaaata cttaaccatg gtcgactgga tccggtaccg aattcgctta 240  
ctaaaagcca gataacagta tgcgtatttg cgcgctgatt tttgcggtat aagaatatat 300  
actgatatgt ataccgaag tatgtcaaaa agaggtgtgc ttctagaatg cagtttaagg 360  
tttacaccta taaaagagag agccgttata gtctgtttgt ggatgtacag agtgatatta 420  
ttgacacgcc cgggcgacgg atagtgatcc ccctggccag tgcacgtctg ctgtcagata 480  
aagtctcccg tgaactttac ccggtgggtgc atatcgggga tgaaagctgg cgcattgatga 540  
ccaccgatat ggccagtgtg ccggtctccg ttatcgggga agaagtggct gatctcagcc 600  
accgcgaaaa tgacatcaaa aacgccatta acctgatgtt ctggggaata tagaattcgc 660  
ggccgcactc gagatatcta gaccagctt tcttgtacaa agttggcatt ataagaaagc 720  
attgcttata aatttgttgc aacgaacagg tcaactatcag tcaaaataaa atcattattt 780  
gccatccagc tgcagctctg gccgtgtct caaaatctct gatgttacat tgcacaagat 840  
aaaaatatat catcatgaac aataaaactg tctgcttaca taaacagtaa tacaaggggt 900  
gttatgagcc atattcaacg ggaaacgtcg aggcgcgat taaattccaa catggatgct 960  
gatttatatg ggtataaatg ggctcgcgat aatgtcgggc aatcaggtgc gacaatctat 1020  
cgcttgatg ggaagcccga tgcgccagag ttgtttctga aacatggcaa aggtagcgtt 1080  
gccaatgatg ttacagatga gatggtcaga ctaaaactggc tgacggaatt tatgcctctt 1140  
ccgaccatca agcattttat ccgtactcct gatgatgcat ggttactcac cactgcgata 1200  
cccggaaaaa cagcattcca ggtattagaa gaatatcctg attcaggtga aaatattgtt 1260  
gatgcgctgg cagtgttctt gcgcgggttg catcgcattc ctgtttgtaa ttgtcctttt 1320  
aacagcgatc gcgtatttcg tctcgtctcag gcgcaatcac gaatgaataa cggtttggtt 1380  
gatgcgagtg attttgatga cgagcgtaat ggctggcctg ttgaacaagt ctggaaagaa 1440  
atgcataaac ttttgccatt ctcaaccgat tcagtcgtca ctcatggtga tttctcactt 1500  
gataacctta tttttgacga ggggaaatta ataggttgta ttgatgttg acgagtcgga 1560  
atcgcagacc gataccagga tcttgccatc ctatggaaact gcctcgggtga gttttctcct 1620  
tcattacaga aacggctttt tcaaaaatat ggtattgata atcctgatat gaataaattg 1680  
cagtttcatt tgatgctcga tgagtttttc taatcagaat tggttaattg gttgtaacat 1740  
tattcagatt gggccccgtt ccaactgagcg tcagaccccg tagaaaagat caaaggatct 1800  
tcttgagatc ctttttttct gcgcgtaatc tgctgcttgc aaacaaaaaa accaccgcta 1860

B 1

ccagcgggtgg tttgtttgcc ggatcaagag ctaccaactc tttttccgaa ggtaactggc 1920  
ttcagcagag cgcagatacc aaatactggt cttctagtgt agccgtagtt aggccaccac 1980  
ttcaagaact ctgtagcacc gcctacatac ctcgctctgc taatcctggt accagtggct 2040  
gctgccagtg gcgataagtc gtgtcttacc gggttggact caagacgata gttaccggat 2100  
aaggcgcagc ggtcgggctg aacggggggt tcgtgcacac agcccagctt ggagcgaacg 2160  
acctacaccg aactgagata cctacagcgt gagctatgag aaagcgccac gtttcccgaa 2220  
gggagaaagg cggacaggta tccggtaagc ggcagggctg gaacaggaga gcgcacgagg 2280  
gagcttccag ggggaaacgc ctggtatctt tatagtctg tcgggtttcg ccacctctga 2340  
cttgagcgtc gatttttgtg atgctcgta ggggggcgga gcctatggaa aaacgccagc 2400  
aacgcggcct ttttacggtt cctggcctt tgctggcctt ttgctcacat gttcttctct 2460  
gcgttatccc ctgattctgt ggataaccgt attaccgcta gcatggatct cggggacgtc 2520  
taactactaa gcgagagtag ggaactgcca ggcacaaat aaaacgaaag gctcagtcgg 2580  
aagactgggc ctttcgtttt atctgttggt tgcggtgaa cgctctctg agtaggacaa 2640  
atccgccggg agcggatttg aacgttgga agcaacggcc cggaggggtg cgggcaggac 2700  
gcccgccata aactgccagg catcaaacta agcagaaggc catc 2744

<210> 129

<211> 6464

<212> DNA

<213> pDEST1

<220>

<221> gene

<222> (216)..(257)

<223> Trc promoter

<220>

<221> gene

<222> (273)..(393)

<223> attR1

<220>

<221> gene  
<222> (647) .. (1306)  
<223> CmR

<220>  
<221> gene  
<222> (1426) .. (1510)  
<223> inactivated ccdA

B 1  
<220>  
<221> gene  
<222> (1648) .. (1953)  
<223> ccdB

<220>  
<221> gene  
<222> (1994) .. (2118)  
<223> attR2

<220>  
<221> gene  
<222> (2598) .. (3503)  
<223> ampR

<220>  
<221> gene  
<222> (4104) .. (4264)  
<223> ori

<220>  
<221> gene

<222> (4504)..(4941)

<223> flori (f1 intergenic region)

<220>

<221> gene

<222> (5340)..(6420)

<223> lacIq

<400> 129

gtttgacagc ttatcatcga ctgcacggtg caccaatgct tctggcgtca ggcagccatc 60  
ggaagctgtg gtatggctgt gcaggtcgta aatcactgca taattcgtgt cgctcaaggc 120  
gcactcccgt tctggataat gttttttgcg ccgacatcat aacggttctg gcaaatattc 180  
tgaaatgagc tgttgacaat taatcatccg gtccgtataa tctgtggaat tgtgagcggg 240  
ataacaattt catcgcgagg taccaagcta tcacaagttt gtacaaaaaa gctgaacgag 300  
aaacgtaaaa tgatataaat atcaatatat taaattagat tttgcataaa aaacagacta 360  
cataatactg taaaacacaa catatccagt cactatggcg gccgctaagt tggcagcatc 420  
acccgacgca ctttgcgccg aataaatacc tgtgacggaa gatcacttcg cagaataaat 480  
aaatcctggt gtccctgttg ataccgggaa gccctgggccc aacttttggc gaaaatgaga 540  
cgttgatcgg cacgtaagag gttccaactt tcaccataat gaaataagat cactaccggg 600  
cgtatttttt gagttatcga gattttcagg agctaaggaa gctaaaatgg agaaaaaat 660  
cactggatat accaccgttg atatatccca atggcatcgt aaagaacatt ttgaggcatt 720  
tcagtcagtt gctcaatgta cctataacca gaccgttcag ctggatatta cggccttttt 780  
aaagaccgta aagaaaaata agcacaagtt ttatccggcc tttattcaca ttcttgcccg 840  
cctgatgaat gctcatccgg aattccgtat ggcaatgaaa gacggtgagc tggatgatg 900  
ggatagtgtt cacccttggt acaccgtttt ccatgagcaa actgaaacgt tttcatcgct 960  
ctggagtga taccacgacg atttccggca gtttctacac atatattcgc aagatgtggc 1020  
gtgttacggt gaaaacctgg cctattttcc taaaggggtt attgagaata tgtttttcgt 1080  
ctcagccaat ccctgggtga gtttcaccag ttttgattta aacgtggcca atatggacaa 1140  
cttcttcgcc cccgttttca ccatgggcaa atattatacg caaggcgaca aggtgctgat 1200  
gccgctggcg attcaggttc atcatgccgt ctgtgatggc ttccatgtcg gcagaatgct 1260  
taatgaatta caacagtact gcgatgagtg gcagggcggg gcgtaaacgc gtggatccgg 1320  
cttactaaaa gccagataac agtatgcgta tttgcgcgct gatttttgcg gtataagaat 1380

atatactgat atgtataccc gaagtatgtc aaaaagaggt gtgctatgaa gcagcgtatt 1440  
acagtgcagcag ttgacagcga cagctatcag ttgctcaagg catatatgat gtcaatatct 1500  
ccggtcttgt aagcacaacc atgcagaatg aagcccgtcg tctgcgtgcc gaacgctgga 1560  
aagcggaaaa tcaggaaggg atggctgagg tcgcccgggt tattgaaatg aacggctctt 1620  
ttgctgacga gaacagggac tgggtgaaatg cagttaaagg ttacaccta taaaagagag 1680  
agccgttatt gtctgtttgt ggatgtacag agtgatatta ttgacacgcc cgggcgacgg 1740  
atggtgatcc ccctggccag tgcacgtctg ctgtcagata aagtctcccg tgaactttac 1800  
ccggtggtgc atatcgggga tgaaagctgg cgcattgatga ccaccgatat ggccagtgtg 1860  
ccggtctccg ttatcgggga agaagtgggt gatctcagcc accgcgaaaa tgacatcaaa 1920  
aacgccatta acctgatgtt ctggggaata taaatgtcag gctcccttat acacagccag 1980  
tctgcaggtc gaccatagtg actggatatg ttgtgtttta cagtattatg tagtctgttt 2040  
tttatgcaaa atctaattta atatatgtat atttatatca ttttacgttt ctctgtcagc 2100  
tttctgttac aaagtgggtg tagcttgggt gttttggcgg atgagagaag attttcagcc 2160  
tgatacagat taaatcagaa cgcagaagcg gtctgataaa acagaatttg cctggcggca 2220  
gtagcgcgggt ggtcccacct gaccccatgc cgaactcaga agtgaaacgc cgtagcgcgg 2280  
atggtagtgt ggggtctccc catgcgagag tagggaactg ccaggcatca aataaacga 2340  
aaggctcagt cgaaagactg ggcctttcgt tttatctgtt gtttgctcgt gaacgctctc 2400  
ctgagtagga caaatccgcc gggagcggat ttgaacgttg cgaagcaacg gcccgagggg 2460  
tggcgggagc gacgcccgcc ataaactgcc aggcatacaa ttaagcagaa ggccatcctg 2520  
acggatggcc tttttgcgtt tctacaaact ctttttgttt atttttctaa atacattcaa 2580  
atatgtatcc gctcatgaga caataacct gataaatgct tcaataatat tgaaaaagga 2640  
agagtatgag tattcaacat ttccgtgtcg cccttattcc cttttttgcg gcattttgcc 2700  
ttctgtttt tgctcaccca gaaacgctgg tgaaagtaaa agatgctgaa gatcagttgg 2760  
gtgcacgagt gggttacatc gaactggatc tcaacagcgg taagatcctt gagagttttc 2820  
gccccgaaga acgtttttcca atgatgagca cttttaaagt tctgctatgt ggcgcggtat 2880  
tateccgtgt tgacgccggg caagagcaac tcggtcgccc catacactat tctcagaatg 2940  
acttggttga gtactacca gtcacagaaa agcatcttac ggatggcatg acagtaagag 3000  
aattatgcag tgctgccata accatgagtg ataacactgc ggccaactta cttctgacaa 3060  
cgatcggagg accgaaggag ctaaccgctt ttttgacaaa catgggggat catgtaactc 3120  
gccttgatcg ttgggaaccg gagctgaatg aagccatacc aaacgacgag cgtgacacca 3180  
cgatgcctac agcaatggca acaacgttgc gcaaactatt aactggcgaa ctacttactc 3240

B1

tagcttcccc gcaacaatta atagactgga tggaggcgga taaagttgca ggaccacttc 3300  
tgcgctcggc ccttcgggtt ggctgggttta ttgctgataa atctggagcc ggtgagcgtg 3360  
ggtctcgcgg tatcattgca gcaactgggc cagatggtaa gccctcccgt atcgtagtta 3420  
tctacacgac ggggagtcag gcaactatgg atgaacgaaa tagacagatc gctgagatag 3480  
gtgcctcact gattaagcat tggtaactgt cagaccaagt ttactcatat atactttaga 3540  
ttgatttaaa acttcatttt taatttaaaa ggatctaggt gaagatcctt tttgataatc 3600  
tcatgaccaa aatcccttaa cgtgagtttt cgttcactg agcgtcagac cccgtagaaa 3660  
agatcaaagg atcttcttga gatccttttt ttctgcgcgt aatctgctgc ttgcaaacaa 3720  
aaaaaccacc gctaccagcg gtggttttgtt tgccggatca agagctacca actctttttc 3780  
cgaaggtaac tggcttcagc agagcgcaga taccaaatac tgtccttcta gtgtagccgt 3840  
agttaggcc aacttcaag aactctgtag caccgcctac atacctcgt ctgctaatec 3900  
tgttaccagt ggctgctgcc agtggcgata agtcgtgtct taccgggttg gactcaagac 3960  
gatagttacc ggataaggcg cagcggtcgg gctgaacggg gggttcgtgc acacagccca 4020  
gcttgagcgc aacgacctac accgaactga gatacctaca gcgtgagcta tgagaaagcg 4080  
ccacgcttcc cgaagggaga aaggcggaca ggtatccggt aagcggcagg gtcggaacag 4140  
gagagcgcac gagggagctt ccagggggaa acgcctggta tctttatagt cctgtcgggt 4200  
ttcgccacct ctgacttgag cgtcgatttt tgtgatgctc gtcagggggg cggagcctat 4260  
ggaaaaacgc cagcaacgcg gcctttttac ggttcctggc cttttgctgg cttttgctc 4320  
acatgttctt tctgcggtta tcccctgatt ctgtggataa ccgtattacc gcctttgagt 4380  
gagctgatac cgctcgccgc agccgaacga ccgagcgcag cgagtcagt agcgaggaag 4440  
cggaagagcg cctgatgcgg tattttctcc ttacgcattc gtgcggtatt tcacaccgca 4500  
taattttgtt aaaattcgcg ttaaattttt gttaaatacag ctcatTTTTT aaccaatagg 4560  
ccgaaatcgg caaaatccct tataaatcaa aagaatagac cgagataggg ttgagtgttg 4620  
ttccagtttg gaacaagagt ccactattaa agaactgtga ctccaacgtc aaagggcgaa 4680  
aaaccgtcta tcagggcgat ggcccactac gtgaaccatc accctaatac agtttttttg 4740  
ggtcgaggtg ccgtaaagca ctaaactcga accctaaagg gagccccga tttagagctt 4800  
gacggggaaa gccggcgaac gtggcgagaa aggaagggaa gaaagcgaaa ggagcgggcg 4860  
ctagggcgct ggcaagtgtg gcggtcacgc tgcgcgtaac caccacaccc gccgcgtta 4920  
atgcgccgct acagggcgcg tccattcgcc attcaggctg ctatggtgca ctctcagtac 4980  
aatctgctct gatgccgat agttaagcca gtaccagtca cgtagcgata tcggagtgtg 5040  
tacactccgc tatcgctacg tgactgggtc atggctgcgc cccgacaccc gccaacaccc 5100

B1

gctgacgcgc cctgacgggc ttgtctgctc cgggcatccg cttacagaca agctgtgacc 5160  
gtctccggga gctgcatgtg tcagaggttt tcaccgtcat caccgaaacg cgcgaggcag 5220  
cagatcaatt cgcgcgcgaa ggcggaagcgg catgcattta cgttgacacc atcgaatggt 5280  
gcaaaacctt tcgcggtatg gcatgatagc gcccggaaga gagtcaattc aggggtggtga 5340  
atgtgaaacc agtaacgtta tacgatgtcg cagagtatgc cgggtgtctct tatcagaccg 5400  
tttcccgcgt ggtgaaccag gccagccacg tttctgcgaa aacgcgggaa aaagtggaag 5460  
cggcgatggc ggagctgaat tacattccca accgcgtggc acaacaactg gcgggcaaac 5520  
agtcgttget gattggcggt gccacctcca gtctggccct gcacgcgccg tcgcaaattg 5580  
tcgcgggcgat taaatctcgc gccgatcaac tgggtgccag cgtggtggtg tcgatggtag 5640  
aacgaagcgg cgtcgaagcc tgtaaagcgg cgggtgcaca tcttctcgcg caacgcgtca 5700  
gtgggctgat cattaactat ccgctggatg accaggatgc cattgctgtg gaagctgcct 5760  
gcactaatgt tccggcggtta tttcttgatg tctctgacca gacacccatc aacagtatta 5820  
ttttctccca tgaagacggt acgcgactgg gcgtggagca tctggtcgca ttgggtcacc 5880  
agcaaatcgc gctgttagcg ggcccattaa gttctgtctc ggcgcgctctg cgtctggctg 5940  
gctggcataa atatctcact cgcaatcaaa ttcagccgat agcggaacgg gaaggcgact 6000  
ggagtgccat gtccggtttt caacaaacca tgcaaatgct gaatgagggc atcgttccca 6060  
ctgcgatgct ggttgccaac gatcagatgg cgctgggcgc aatgcgcgcc attaccgagt 6120  
ccgggctgcg cgttggtgcg gatctctcgg tagtgggata cgacgatacc gaagacagct 6180  
catgttatat cccgccgtta accaccatca aacaggatgt tcgcctgctg gggcaaacca 6240  
gcgtggaccg cttgctgcaa ctctctcagg gccaggcggg gaagggaat cagctgttgc 6300  
ccgtctcact ggtgaaaaga aaaaccaccc tggcacccaa tacgcaaacc gcctctcccc 6360  
gcgcgttggc cgattcatta atgcagctgg cacgacaggt ttcccgactg gaaagcgggc 6420  
agtgagcgca acgcaattaa tgtgagttag cgcaattga tctg 6464

<210> 130

<211> 6553

<212> DNA

<213> pDEST2

<220>

<221> gene

<222> (912)..(962)

<223> Trc

<220>

<221> gene

<222> (1009) .. (1223)

<223> attR1

<220>

<221> gene

<222> (1473) .. (2132)

<223> CmR

<220>

<221> gene

<222> (2252) .. (2336)

<223> inactivated ccdA

<220>

<221> gene

<222> (2474) .. (2779)

<223> ccdB

<220>

<221> gene

<222> (2820) .. (2944)

<223> attR2

<220>

<221> gene

<222> (3509) .. (4414)

<223> ampR

B1



<220>

<221> gene

<222> (5015) .. (5175)

<223> ori

<220>

<221> gene

<222> (5415) .. (5825)

<223> flori (f1 intergenic region)

<220>

<221> gene

<222> (752) .. (6225)

<223> lacIq

<400> 130

ggcgggtgcac aatcttctcg cgcaacgcgt cagtgggctg atcattaact atccgctgga 60  
tgaccaggat gccattgctg tggaagctgc ctgcactaat gttccggcgt tatttcttga 120  
tgtctctgac cagacacca tcaacagtat tattttctcc catgaagacg gtacgcgact 180  
gggcgtggag catctggctg cattgggtca ccagcaaadc gcgctgtag cgggccatt 240  
aagttctgtc tcggcgcgtc tgcgtctggc tggctggcat aaatatctca ctgcgaatca 300  
aattcagccg atagcggaac gggaaggcga ctggagtgcc atgtccggtt ttcaacaaac 360  
catgcaaata ctgaatgagg gcatcgttcc cactgcgatg ctggttgcca acgatcagat 420  
ggcgtctggc gcaatgcgcg ccattaccga gtccgggctg cgcgttggtg cggatatctc 480  
ggtagtgagg tacgacgata ccgaagacag ctcatgttat atcccgccgt caaccaccat 540  
caaacaggat ttctgcctgc tggggcaaac cagcgtggac cgcttgctgc aactctctca 600  
gggccaggcg gtgaagggca atcagctggt gcccgctctca ctggtgaaaa gaaaaaccac 660  
cctggcacc aatacgcaaa ccgcctctcc ccgcgcgttg gccgattcat taatgcagct 720  
ggcacgacag gtttcccgac tggaaagcgg gcagtgagcg caacgcaatt aatgtgagtt 780  
agcgcgaatt gatctggttt gacagcttat catcgactgc acggtgcacc aatgcttctg 840  
gcgtcaggca gccatcgga gctgtggtat ggctgtgcag gtcgtaaatc actgcataat 900

tcgtgtcgct caagggcgac tcccgttctg gataatgttt tttgcgccga catcataacg 960  
gttctggcaa atattctgaa atgagctgtt gacaattaat catccgggtcc gtataatctg 1020  
tggaattgtg agcgggataac aatttcacac aggaaacaga ccatgtcgta ctaccatcac 1080  
catcaccatc acgggcatcac aagtttgtac aaaaaagctg aacgagaaac gtaaaatgat 1140  
ataaatatca atatattaaa ttagattttg cataaaaaac agactacata atactgtaaa 1200  
acacaacata tccagtcact atggcggccg ctaagttggc agcatcaccc gacgcacttt 1260  
gcgccgaata aatacctgtg acggaagatc acttcgcaga ataaataaat cctgggtgtcc 1320  
ctgttgatac cggaagccc tgggccaact tttggcgaaa atgagacgtt gatcggcacg 1380  
taagagggtc caactttcac cataatgaaa taagatcact accgggcgta ttttttgagt 1440  
tatcgagatt ttcaggagct aaggaagcta aaatggagaa aaaaatcact ggatatacca 1500  
ccgttgatat atcccaatgg catcgtaaag aacattttga ggcatttcag tcagttgctc 1560  
aatgtaccta taaccagacc gttcagctgg atattacggc ctttttaaag accgtaaaga 1620  
aaaataagca caagttttat ccggccttta ttcacattct tgcccgcctg atgaatgctc 1680  
atccggaatt ccgtatggca atgaaagacg gtgagctggg gatatgggat agtgttcacc 1740  
cttgttacac cgttttccat gagcaactg aaacgttttc atcgctctgg agtgaatacc 1800  
acgacgattt ccggcagttt ctacacatat attcgcaaga tgtggcgtgt tacggtgaaa 1860  
acctggccta tttccctaaa gggtttattg agaatatgtt tttcgtctca gccaatccct 1920  
gggtgagttt caccagttt gatttaaagc tggccaatat ggacaacttc ttcgcccccg 1980  
ttttcaccat gggcaaatat tatacgcaag gcgacaaggt gctgatgccg ctggcgattc 2040  
aggttcatca tgccgtctgt gatggcttcc atgtcggcag aatgcttaat gaattacaac 2100  
agtactgcga tgagtggcag ggcggggcgt aaacgcgtgg atccggctta ctaaaagcca 2160  
gataacagta tgcgtatttg cgcgctgatt tttgcggtat aagaatatat actgatatgt 2220  
atacccgaag tatgtcaaaa agaggtgtgc tatgaagcag cgtattacag tgacagttga 2280  
cagcgacagc tatcagttgc tcaaggcata tatgatgtca atatctccgg tctggtaagc 2340  
acaaccatgc agaataagc ccgtcgtctg cgtgccgaac gctggaaagc ggaaaatcag 2400  
gaagggatgg ctgaggtcgc ccggtttatt gaaatgaacg gctcttttgc tgacgagaac 2460  
agggactggg gaaatgcagt ttaaggttta cacctataaa agagagagcc gttatcgtct 2520  
gtttgtggat gtacagagt atattattga caccgccggg cgacggatgg tgatccccct 2580  
ggccagtgc cgtctgctgt cagataaagt ctcccgtaaa ctttaccggg tgggtgcata 2640  
cggggatgaa agctggcgca tgatgaccac cgatatggcc agtgtgccgg tctccgttat 2700  
cggggaagaa gtggctgatc tcagccaccg cgaaaatgac atcaaaaacg ccattaacct 2760

B1

gatgttctgg ggaatataaa tgtcaggctc ccttatacac agccagtctg caggctcgacc 2820  
atagtgactg gatatgttgt gttttacagt attatgtagt ctgtttttta tgcaaaatct 2880  
aatttaatat attgatattt atatcatttt acgtttctcg ttcagctttc ttgtacaaag 2940  
tggatgatgcc catatgggaa ttcaaaggcc tacgtcgacg agctcactag tcgcggccgc 3000  
ttctagagga tccctcgagg catgcggtac caagcttggc tggttttggcg gatgagagaa 3060  
gattttcagc ctgatacaga ttaaatacaga acgcagaagc ggtctgataa aacagaattt 3120  
gcctggcggc agtagcgcgg tgggtcccacc tgaccccatg ccgaactcag aagtgaacg 3180  
ccgtagcgcc gatggttagt tggggtctcc ccatgcgaga gtaggggaact gccaggcatc 3240  
aaataaaaacg aaaggctcag tcgaaagact gggcctttcg ttttatctgt tgtttgcg 3300  
tgaacgctct cctgagtagg acaaatccgc cgggagcgga tttgaacgtt gcgaagcaac 3360  
ggcccgagg gtggcgggca ggacgcccgc cataaactgc caggcatcaa attaagcaga 3420  
aggccatcct gacggatggc ctttttgcgt ttctacaaac tctttttgtt tatttttcta 3480  
aatacattca aatatgtatc cgctcatgag acaataacc tgataaatgc ttcaataata 3540  
ttgaaaaagg aagagtatga gtattcaaca ttcccggtgc gcccttattc ctttttttgc 3600  
ggcattttgc cttcctgttt ttgctcacc agaaacgctg gtgaaagtaa aagatgctga 3660  
agatcagttg ggtgcacgag tgggttacat cgaactggat ctcaacagcg gtaagatcct 3720  
tgagagtttt cgtcccgagg aacgttttcc aatgatgagc acttttaaag ttctgctatg 3780  
tggcgcggtg ttatcccggtg ttgacgcccgc gcaagagcaa ctcggtcgcc gcatacacta 3840  
ttctcagaat gacttggttg agtactcacc agtcacagaa aagcatctta cggatggcat 3900  
gacagtaaga gaattatgca gtgctgccat aacctgagt gataaactg cggccaactt 3960  
acttctgaca acgatcgag gaccgaagga gctaaccgct tttttgcaca acatggggga 4020  
tcatgtaact cgccttgatc gttgggaacc ggagctgaat gaagccatac caaacgacga 4080  
gcgtgacacc acgatgccta cagcaatggc aacaacgttg cgcaaactat taactggcga 4140  
actacttact ctagcttccc ggcaacaatt aatagactgg atggaggcgg ataaagtgc 4200  
aggaccactt ctgcgctcg ccttccggc tggctggttt attgctgata aatctggagc 4260  
cggatgagcgt ggggtctcg gttatcattgc agcactggg ccagatggta agccctccc 4320  
tctcgtagtt atctacacga cggggagtca ggcaactatg gatgaacgaa atagacagat 4380  
cgctgagata ggtgcctcac tgattaagca ttggtaactg tcagaccaag ttactcata 4440  
tatactttag attgatttaa aacttcattt ttaatttaaa aggatctagg tgaagatcct 4500  
ttttgataat ctcatgacca aaatccctta acgtgagttt tcgttccact gagcgtcaga 4560  
ccccgtagaa aagatcaaag gatcttcttg agatcctttt tttctgcgcg taatctgctg 4620

B1

cttgcaaaca aaaaaaccac cgctaccage ggtgggttgt ttgccggatc aagagctacc 4680  
aactcttttt ccgaaggtaa ctggcttcag cagagcgcag ataccaaata ctgtccttct 4740  
agtgtagccg tagttaggcc accacttcaa gaactctgta gcaccgccta catacctcgc 4800  
tctgctaata ctgttaccag tggctgctgc cagtggcgat aagtcgtgtc ttaccggggt 4860  
ggactcaaga cgatagttac cggataaggc gcagcggctg ggctgaacgg ggggttcgtg 4920  
cacacagccc agcttggagc gaacgaccta caccgaactg agatacctac agcgtgagct 4980  
atgagaaagc gccacgcttc ccgaagggag aaaggcggac aggtatccgg taagcggcag 5040  
ggtcggaaca ggagagcgca cgagggagct tccaggggga aacgcctggg atctttatag 5100  
tcctgtcggg ttctgccacc tctgacttga gcgtcgatct ttgtgatgct cgtcaggggg 5160  
gcggagccta tggaaaaacg ccagcaacgc ggcttttcta cggttcctgg ccttttgctg 5220  
gccttttgct cacatgttct ttctgcgtt atccctgat tctgtggata accgtattac 5280  
cgcctttgag tgagctgata ccgctcgccg cagccgaacg accgagcgca gcgagtcagt 5340  
gagcgaggaa gcggaagagc gcctgatgcg gtattttctc cttacgcata tgtgcggtat 5400  
ttcacaccgc ataattttgt taaaattcgc gttaaatttt tgttaaataca gtcattttt 5460  
taaccaatag gccgaaatcg gcaaaatccc ttataaatca aaagaataga ccgagatagg 5520  
gttgagtgtt gttccagttt ggaacaagag tccactatta aagaacgtgg actccaacgt 5580  
caaagggcga aaaaccgtct atcagggcga tggcccacta cgtgaaccat caccctaate 5640  
aagttttttg gggtcgaggt gccgtaaagc actaaatcgg aaccctaaag ggagcccccg 5700  
atttagagct tgacggggaa agccggcgaa cgtggcgaga aaggaaggga agaaagcgaa 5760  
aggagcgggc gctagggcgc tggcaagtgt agcggtcacg ctgcgcgtaa ccaccacacc 5820  
cgccgcgctt aatgcgccgc tacagggcgc gtcccatcgc ccattcaggc tgctatgggtg 5880  
cactctcagt acaatctgct ctgatgccgc atagttaagc cagtatacac tccgctatcg 5940  
ctacgtgact gggtcatggc tgcgccccga caccgcgcaa caccgcgtga cgcgcctga 6000  
cgggcttgct tgctcccggc atccgcttac agacaagctg tgaccgtctc cgggagctgc 6060  
atgtgtcaga ggttttcacc gtcatcaccg aaacgcgcga ggcagcagat caattcgcgc 6120  
gcgaaggcga agcggcatgc atttacgttg acaccatcga atggtgcaaa acctttcgcg 6180  
gtatggcatg atagcgcccc gaagagagtc aattcagggg ggtgaatgtg aaaccagtaa 6240  
cgttatacga tgtcgcagag tatgccggtg tctcttatca gaccgtttcc cgcgtgggtga 6300  
accaggccag ccacgtttct gcgaaaacgc gggaaaaagt ggaagcggcg atggcggagc 6360  
tgaattacat tcccaaccgc gtggcacaac aactggcggg caaacagtcg ttgctgattg 6420  
gcgttgccac ctccagtctg gcctgcacg cgccgtcgca aattgtcgcg gcgattaaat 6480

B1

ctcgcgccga tcaactgggt gccagcgtgg tgggtgtcgat ggtagaacga agcggcgctcg 6540  
aagcctgtaa agc 6553

<210> 131

<211> 6823

<212> DNA

<213> pDEST3

<220>

<221> gene

<222> (150)..(200)

<223> Trc

<220>

<221> gene

<222> (963)..(1087)

<223> attR1

<220>

<221> gene

<222> (1337)..(1996)

<223> CmR

<220>

<221> gene

<222> (2116)..(2200)

<223> inactivated ccdA

<220>

<221> gene

<222> (2338)..(2643)

<223> ccdB

B1

<220>

<221> gene

<222> (2684) .. (2808)

<223> attR2

<220>

<221> gene

<222> (3231) .. (4091)

<223> ampR

<220>

<221> gene

<222> (5295) .. (6254)

<223> lacIq

<400> 131

acgttatcga ctgcacggtg caccaatgct tctggcggtca ggcagccatc ggaagctgtg 60  
gtatggctgt gcaggtcgta aatcactgca taattcgtgt cgctcaaggc gcactcccgt 120  
tctggataat gttttttgcg ccgacatcat aacggttctg gcaaattatc tgaaatgagc 180  
tgttgacaat taatcatcgg ctcgatataat gtgtggaatt gtgagcggat aacaatttca 240  
cacaggaaac agtattcatg tcccctatac taggttattg gaaaattaag ggccttgtgc 300  
aaccactcgc acttcttttg gaatatcttg aagaaaaata tgaagagcat ttgtatgagc 360  
gcgatgaagg tgataaatgg cgaaacaaaa agtttgaatt gggtttggag tttcccaatc 420  
ttccttatta tattgatggt gatgttaaat taacacagtc tatggccatc atacgttata 480  
tagctgacaa gcacaacatg ttgggtgggt gtccaaaaga gcgtgcagag atttcaatgc 540  
ttgaaggagc ggttttggat attagatacg gtgtttcgag aattgcatat agtaaagact 600  
ttgaaactct caaagttgat tttcttagca agctacctga aatgctgaaa atgttcgaag 660  
atcgtttatg tcataaaaca tatttaaagt gtgatcatgt aaccatcct gacttcatgt 720  
tgtatgacgc tcttgatgtt gttttataca tggacccaat gtgcctggat gcgttcccaa 780  
aattagtttg ttttaaaaaa cgtattgaag ctatcccaca aattgataag tacttgaaat 840  
ccagcaagta tatagcatgg cttttgcagg gctggcaagc cacgtttggt ggtggcgacc 900

atcctccaaa atcggatctg gttccgcgtg gatctcgtcg tgcattctgtt ggatcccat 960  
caacaagttt gtacaaaaaa gctgaacgag aaacgtaaaa tgatataaat atcaatatat 1020  
taaattagat tttgcataaa aaacagacta cataatactg taaaacacaa catatccagt 1080  
cactatggcy gccgctaagt tggcagcatc acccgacgca ctttgcgccg aataaatacc 1140  
tgtgacggaa gatcacttcg cagaataaat aaatcctggt gtcctgttg ataccgggaa 1200  
gccctgggccc aacttttggc gaaaatgaga cgttgatcgg cacgtaagag gttccaactt 1260  
tcaccataat gaaataagat cactaccggg cgtatttttt gagttatcga gattttcagg 1320  
agctaaggaa gctaaaatgg agaaaaaaat cactggatat accaccgttg atatatccca 1380  
atggcatcgt aaagaacatt ttgaggcatt tcagtcagtt gctcaatgta cctataacca 1440  
gaccgttcag ctggatatta cggccttttt aaagaccgta aagaaaaata agcacaagtt 1500  
ttatccggcc tttattcaca ttcttgcccg cctgatgaat gctcatccgg aattccgtat 1560  
ggcaatgaaa gacggtgagc tggtgatatg ggatagtgtt cacccttgtt acaccgtttt 1620  
ccatgagcaa actgaaacgt tttcatcgt ctggagtga taccacgacg atttccggca 1680  
gtttctacac atatatcgc aagatgtggc gtgttacggt gaaaacctgg cctatttccc 1740  
taaagggttt attgagaata tgtttttcgt ctcagccaat ccctgggtga gtttcaccag 1800  
ttttgattta aacgtggcca atatggacaa cttcttcgcc cccgttttca ccatgggcaa 1860  
atattatacg caaggcgaca aggtgctgat gccgctggcg attcaggttc atcatgccgt 1920  
ctgtgatggc ttccatgtcg gcagaatgct taatgaatta caacagtact gcgatgagt 1980  
gcaggggcgg gcgtaaagat ctggatccgg ctactaaaa gccagataac agtatgcgta 2040  
tttgcgcgt gatttttgcg gtataagaat atatactgat atgtataccc gaagtatgtc 2100  
aaaaagaggt gtgctatgaa gcagcgtatt acagtgacag ttgacagcga cagctatcag 2160  
ttgctcaagg catatatgat gtcaatatct ccggtctggt aagcacaacc atgcagaatg 2220  
aagcccgtcg tctgcgtgcc gaacgctgga aagcggaaaa tcaggaagg atggctgagg 2280  
tcgcccgtt tattgaaatg aacggctctt ttgctgacga gaacagggac tggtgaaatg 2340  
cagtttaagg ttacaccta taaaagagag agccgttctc gtctgtttgt ggatgtacag 2400  
agtgatatta ttgacacgcc cgggcgacgg atggatgatcc ccctggccag tgcacgtctg 2460  
ctgtcagata aagtctccc tgaactttac ccggtggtgc atatcgggga tgaaagctgg 2520  
cgcatgatga dcaccgatat ggccagtgtg ccggtctccg ttatcgggga agaagtggct 2580  
gatctcagcc accgcgaaaa tgacatcaaa aacgccatta acctgatgtt ctggggaata 2640  
taaagtgcag gtcctttat acacagccag tctgcaggtc gaccatagt actggatatg 2700  
ttgtgtttta cagtattatg tagtctgttt tttatgcaaa atctaattta atatatgtat 2760

B1

atttatatca ttttacgttt ctggttcagc tttcttgtag aaagtgggtg atgggaattc 2820  
atcgtgactg actgacgacg tgcctcgcgc gtttcggtga tgacggtgaa aacctctgac 2880  
acatgcagct cccggagacg gtcacagctt gtctgtaagc ggatgccggg agcagacaag 2940  
cccgtcaggg cgcgtcagcg ggtggtggcg ggtgtcgggg cgcagccatg acccagtcac 3000  
gtagcgatag cggagtgtat aattcttgaa gacgaaaggg cctcgtgata cgcctatttt 3060  
tatagggttaa tgtcatgata ataatgggtt cttagacgctc aggtggcact tttcggggaa 3120  
atgtgcgcgg aaccctatt tgtttatttt tctaaataca ttcaaatac tatccgctca 3180  
tgagacaata accctgataa atgcttcaat aatattgaaa aaggaagagt atgagtattc 3240  
aacatttccg tgtcgccctt attccctttt ttgcggcatt ttgccttctt gtttttgctc 3300  
accagaaac gctgggtgaaa gtaaaagatg ctgaagatca gttgggtgca cgagtgggtt 3360  
acatcgaact ggatctcaac agcggtaaga tccttgagag ttttcgcccc gaagaacgtt 3420  
ttccaatgat gagcactttt aaagttctgc tatgtggcgc ggtattatcc cgtgttgacg 3480  
ccgggcaaga gcaactcggg cgcgcgatac actattctca gaatgacttg gttgagtact 3540  
caccagtcac agaaaagcat cttacggatg gcatgacagt aagagaatta tgcagtgtg 3600  
ccataacat gagtgataac actgcccga acttacttct gacaacgac ggaggaccga 3660  
aggagctaac cgcttttttg cacaacatgg gggatcatgt aactcgcctt gatcgttggg 3720  
aaccggagct gaatgaagcc ataccaaacg acgagcgtga caccacgatg cctgcagcaa 3780  
tggcaacaac gttgcgcaaa ctattaactg gcgaactact tactctagct tcccggcaac 3840  
aattaataga ctggatggag gcggataaag ttgcaggacc acttctgcgc tcggcccttc 3900  
cggctggctg gtttattgct gataaatctg gagccggtga gcgtgggtct cgcggtatca 3960  
ttgcagcact ggggccagat ggtaagccct cccgtatcgt agttatctac acgacgggga 4020  
gtcaggcaac tatggatgaa cgaaatagac agatcgctga gatagggtgcc tcaactgatta 4080  
agcattggta actgtcagac caagtttact catatatact ttagattgat ttaaaacttc 4140  
atttttaatt taaaaggatc taggtgaaga tcctttttga taatctcatg accaaaatcc 4200  
cttaacgtga gttttcgctt cactgagcgt cagaccccgat agaaaagatc aaaggatctt 4260  
cttgagatcc tttttttctg cgcgtaatct gctgcttgca aacaaaaaaaa ccaccgctac 4320  
cagcgggtgt ttgtttgccg gatcaagagc taccaactct tttccgaag gtaactggct 4380  
tcagcagagc gcagatacca aatactgtcc ttctagtgtg gccgtagtta ggccaccact 4440  
tcaagaactc tgtagcaccg cctacatacc tcgctctgct aatcctgtta ccagtggctg 4500  
ctgccagtgg cgataagtcg tgtcttaccg ggttggtactc aagacgatag ttaccggata 4560  
aggcgcagcg gtcggggtga acgggggggtt cgtgcacaca gccagcttg gagcgaacga 4620

B1



cctacaccga actgagatac ctacagcgtg agctatgaga aagcgccacg cttcccgaag 4680  
ggagaaaggc ggacaggtat ccggtaaagc gcagggtcgg aacaggagag cgcacgaggg 4740  
agcttccagg gggaaacgcc tggatatctt atagtccctg cgggtttcgc cacctctgac 4800  
ttgagcgtcg atttttgtga tgctcgtcag gggggcggag cctatggaaa aacgccagca 4860  
acgcggcctt tttacggttc ctggcctttt gctggccttt tgctcacatg ttctttcctg 4920  
cgttatcccc tgattctgtg gataaccgta ttaccgcctt tgagtgaagt gataccgctc 4980  
gccgcagccg aacgaccgag cgcagcaggt cagtgaagca ggaagcggaa gagcgcctga 5040  
tgcggtatct tctccttacg catctgtgag gtatttcaca ccgcataaat tccgacacca 5100  
tcgaatggtg caaaaccttt cgcggtatgg catgatagcg cccggaagag agtcaattca 5160  
gggtggtgaa tgtgaaacca gtaacgttat acgatgtcgc agagtatgcc ggtgtctctt 5220  
atcagaccgt tttccgcgtg gtgaaccagg ccagccacgt ttctgcgaaa acgcgggaaa 5280  
aagtggagc ggcgatggcg gagctgaatt acattcccaa ccgcgtggca caacaactgg 5340  
cgggcaaaca gtcgttgctg attggcggtg ccacctccag tctggccctg cacgcgccgt 5400  
cgcaaattgt cgcggcgatt aaatctcgcg ccgatcaact gggtgccagc gtgggtggtg 5460  
cgatggtaga acgaagcggc gtcgaagcct gtaaagcggc ggtgcacaat cttctcgcgc 5520  
aacgcgtcag tgggctgac attaaactat cgtgggatga ccaggatgcc attgctgtgg 5580  
aagctgcctg cactaatgtt ccggcggtat ttcttgatgt ctctgaccag acacccatca 5640  
acagtattat tttctcccat gaagacggta cgcgactggg cgtggagcat ctggctcgcat 5700  
tgggtcacca gcaaactcgc ctgttagcgg gcccatatag ttctgtctcg gcgcgtctgc 5760  
gtctggctgg ctggcataaa tatctcactc gcaatcaaatt tcagccgata gcggaacggg 5820  
aaggcgactg gagtgccatg tccggttttc aacaaaccat gcaaattgctg aatgagggca 5880  
tcgttcccac tgcatgctg gttgccaacg atcagatggc gctgggcgca atgcgcgcca 5940  
ttaccgagtc cgggctgcgc gttggtgcgg atatctcggg agtgggatac gacgataccg 6000  
aagacagctc atgttatatc ccgcggttaa ccaccatcaa acaggatttt cgcctgctgg 6060  
ggcaaaccag cgtggaccgc ttgctgcaac tctctcaggg ccaggcgggtg aagggaatc 6120  
agctgttgcc cgtctcactg gtgaaaagaa aaaccaccct ggcgcccaat acgcaaaccg 6180  
cctctccccg cgcgttggtc gattcattaa tgcagctggc acgacagggt tcccgaactg 6240  
aaagcgggca gtgagcgcaa cgcaattaat gtgagttagc tctctcatta ggcacccag 6300  
gctttacact ttatgcttcc ggctcgtatg ttgtgtggaa ttgtgagcgg ataacaattt 6360  
cacacaggaa acagctatga ccatgattac ggattcactg gccgtcgttt tacaacgtcg 6420  
tgactgggaa aaccctggcg ttaccaact taatgcctt gcagcacatc cccctttcgc 6480

B1

cagctggcgt aatagcgaag aggcccgac cgatcgccct tcccaacagt tgcgcagcct 6540  
gaatggcgaa tggcgctttg cctgggtttcc ggcaccagaa gcggtgccgg aaagctggct 6600  
ggagtgcgat cttcctgagg cggatactgt cgtcgtcccc tcaaactggc agatgcacgg 6660  
ttacgatgcg cccatctaca ccaacgtaac ctatcccatt acggtcaatc cgccgtttgt 6720  
tcccacggag aatccgacgg gttgttactc gctcacattt aatgttgatg aaagctggct 6780  
acaggaaggc cagacgcgaa ttatTTTTga tggcgttgga att 6823

<210> 132

<211> 6964

<212> DNA

<213> pDEST4

<220>

<221> misc\_feature

<222> (6950)..()

<223> n is any nucleotide

<220>

<221> gene

<222> (964)..(1003)

<223> Trc

<220>

<221> gene

<222> (1453)..(1577)

<223> attR1

<220>

<221> gene

<222> (1827)..(2486)

<223> CmR

<220>

<221> gene

<222> (2606) .. (2690)

<223> inactivated ccdA

<220>

<221> gene

<222> (2828) .. (3133)

<223> ccdB

B1  
<220>

<221> gene

<222> (3174) .. (3298)

<223> attR2

<220>

<221> gene

<222> (3872) .. (4777)

<223> ampR

<220>

<221> gene

<222> (5378) .. (5538)

<223> ori

<220>

<221> gene

<222> (5778) .. (6215)

<223> flori (f1 intergenic region)

<220>

<221> gene

<222> (704)..(6587)

<223> lacIq

<400> 132

ctatccgctg gatgaccagg atgccattgc tgtggaagct gcctgcacta atgttccggc 60  
gttattttctt gatgtctctg accagacacc catcaacagt attattttct cccatgaaga 120  
cggtagcgca ctgggcgtgg agcatctggg cgcatggggg caccagcaaa tcgcgctggt 180  
agcggggccca ttaagttctg tctcggcgcg tctgcgtctg gctggctggc ataaatatct 240  
cactcgcaat caaattcagc cgatagcgga acgggaaggc gactggagtg ccatgtccgg 300  
ttttcaacaa accatgcaaa tgctgaatga gggcatcggt cccactgcga tgctgggtgc 360  
caacgatcag atggcgctgg gcgcaatgcg cgccattacc gagtccgggc tgcgcgttgg 420  
tgcggatatc tcggtagtgg gatacgacga taccgaagac agtcatgtt atatcccgcc 480  
gtcaaccacc atcaaacagg attttcgctt gctggggcaa accagcgtgg accgcttgct 540  
gcaactctct cagggccagg cgggtgaagg caatcagctg ttgcccgtct cactgggtgaa 600  
aagaaaaacc accctggcac ccaatacgca aaccgcctct ccccgcgctg tggccgattc 660  
attaatgcag ctggcacgac aggtttcccg actggaaagc gggcagtgag cgcaacgcaa 720  
ttaatgtgag ttagcgcgaa ttgatctggg ttgacagctt atcatcgact gcacgggtgca 780  
ccaatgcttc tggcgctcagg cagccatcgg aagctgtggg atggctgtgc aggtcgtaaa 840  
tactgcata attcgtgtcg ctcaaggcgc actcccgctt tggataatgt tttttgcgcc 900  
gacatcataa cggttctggc aaatattctg aaatgagctg ttgacaatta atcatccggt 960  
ccgtataatc tgtggaattg tgagcggata acaatttcac acaggaaaca gaccatgggt 1020  
catcatcatc atcatcacga ttacgatatc ccaacgaccg aaaacctgta ttttcagggc 1080  
gcccatatga gcgataaaat tattcacctg actgacgaca gttttgacac ggatgtactc 1140  
aaagcggacg gggcgatcct cgtcgatttc tgggcagagt ggtgcgggtc gtgcaaaatg 1200  
atcgccccga ttctggatga aatcgctgac gaatatcagg gcaaactgac cgttgcaaaa 1260  
ctgaacatcg atcaaaaccc tggcactgcg ccgaaatatg gcatccgtgg tatcccgact 1320  
ctgctgctgt tcaaaaacgg tgaagtggcg gcaaccaaag tgggtgcact gtctaaagggt 1380  
cagttgaaag agttcctcga cgctaacctg gccggttctg gttctgggtga tgacgatgac 1440  
aaggtagcca tcacaagttt gtacaaaaaa gctgaacgag aaacgtaaaa tgatataaat 1500  
atcaatatat taaattagat ttgcataaaa aaacagacta cataatactg taaaacacaa 1560  
catatccagt cactatggcg gccgctaagt tggcagcatc acccgacgca ctttgcgccg 1620

B1

aataaataacc tgtgacggaa gatcacttcg cagaataaat aaatcctggt gtccttggtg 1680  
ataccgggaa gccctgggcc aacttttggc gaaaatgaga cgttgatcgg cacgtaagag 1740  
gttccaactt tcaccataat gaaataagat cactaccggg cgtatttttt gagttatcga 1800  
gattttcagg agctaaggaa gctaaaatgg agaaaaaat cactggatat accaccgttg 1860  
atatatccca atggcatcgt aaagaacatt ttgaggcatt tcagtcagtt gctcaatgta 1920  
cctataacca gaccgttcag ctggatatta cggccttttt aaagaccgta aagaaaaata 1980  
agcacaagtt ttatccggcc tttattcaca ttcttgcccg cctgatgaat gctcatccgg 2040  
aattccgtat ggcaatgaaa gacggtgagc tggatgatg ggatagtgtt cacccttggt 2100  
acaccgtttt ccatgagcaa actgaaacgt tttcatcgct ctggagtga taccacgacg 2160  
atttccggca gtttctacac atatatcgc aagatgtggc gtgttacggt gaaaacctgg 2220  
cctatttccc taaagggttt attgagaata tgttttctg ctcagccaat ccctgggtga 2280  
gtttcaccag ttttgattta aacgtggcca atatggacaa cttcttcgcc cccgttttca 2340  
ccatgggcaa atattatacg caaggcgaca aggtgctgat gccgctggcg attcaggttc 2400  
atcatgccgt ctgtgatggc ttccatgtcg gcagaatgct taatgaatta caacagtact 2460  
gcgatgagtg gcagggcggg gcgtaaacgc gtggatccgg cttactaaaa gccagataac 2520  
agtatgcgta tttgcgcgct gatttttgcg gtataagaat atatactgat atgtataccc 2580  
gaagtatgtc aaaaagaggt gtgctatgaa gcagcgtatt acagtgacag ttgacagcga 2640  
cagctatcag ttgctcaagg catatatgat gtcaatatct ccggtctggt aagcacaacc 2700  
atgcagaatg aagcccgtcg tctgcgtgcc gaacgctgga aagcggaaaa tcaggaaggg 2760  
atggctgagg tcgcccgtt tattgaaatg aacggctctt ttgctgacga gaacagggac 2820  
tggatgaaatg cagtttaagg tttacaccta taaaagagag agccgttatc gtctgtttgt 2880  
ggatgtacag agtgatatta ttgacacgcc cgggcgacgg atggtgatcc ccctggccag 2940  
tgcacgtctg ctgtcagata aagtctcccg tgaactttac ccggtggtgc atatcgggga 3000  
tgaaagctgg cgcgatgatg ccaccgatat ggccagtgtg ccggtctccg ttatcgggga 3060  
agaagtggct gatctcagcc accgcgaaaa tgacatcaaa aacgccatta acctgatgtt 3120  
ctggggaata taaatgtcag gctcccttat acacagccag tctgcaggtc gaccatagtg 3180  
actggatatg ttgtgtttta cagtattatg tagtctgttt tttatgcaaa atctaattta 3240  
atatattgat atttatatca ttttacgttt ctcgttcagc tttctgtac aaagtgggtga 3300  
tggggatcct ctagagtcga cctgcagtaa tcgtacaggg tagtacaaat aaaaaaggca 3360  
cgtcagatga cgtgcctttt ttcttgtgag cagtaagctt ggctgttttg gcggatgaga 3420  
gaagattttc agcctgatac agattaaatc agaacgcaga agcggctctga taaaacagaa 3480

tttgccctggc ggcagtagcg cgggtgggtccc acctgacccc atgccgaact cagaagtgaa 3540  
acgccgtagc gccgatggta gtgtgggggtc tccccatgcg agagtaggga actgccaggc 3600  
atcaaataaa acgaaaggct cagtcgaaag actgggcctt tcgttttatc tgttgtttgt 3660  
cgggtgaacgc tctcctgagt aggacaaatc cgccggggagc ggatttgaac gttgcgaagc 3720  
aacggccccg aggggtggcgg gcaggacgcc cgccataaac tgccaggcat caaattaagc 3780  
agaaggccat cctgacggat ggccctttttg cgtttctaca aactcttttt gtttattttt 3840  
ctaaatacat tcaaatatgt atccgctcat gagacaataa ccctgataaa tgcttcaata 3900  
atattgaaaa aggaagagta tgagtattca acatttccgt gtccgccctta ttcccttttt 3960  
tgcggcattt tgccttctctg tttttgctca cccagaaacg ctggtgaaag taaaagatgc 4020  
tgaagatcag ttgggtgcac gagtgggtta catcgaactg gatctcaaca gcgtaagat 4080  
ccttgagagt ttctgccccg aagaacgttt tccaatgatg agcactttta aagttctgct 4140  
atgtggcgcg gtattatccc gtgttgacgc cgggcaagag caactcggtc gccgcataca 4200  
ctattctcag aatgacttgg ttgagtactc accagtcaca gaaaagcatc ttacggatgg 4260  
catgacagta agagaattat gcagtgtgc cataaccatg agtgataaca ctgcggccaa 4320  
cttacttctg acaacgatcg gaggaccgaa ggagctaacc gcttttttgc acaacatggg 4380  
ggatcatgta actcgccttg atcgttggga accggagctg aatgaagcca taccaaacga 4440  
cgagcgtgac accacgatgc ctacagcaat ggcaacaacg ttgcgcaaac tattaactgg 4500  
cgaactactt actctagctt cccggcaaca attaatagac tggatggagg cggataaagt 4560  
tgcaggacca cttctgcgct cggcccttcc ggctgggtgg tttattgctg ataaatctgg 4620  
agccggtgag cgtgggtctc gcggtatcat tgcagcactg gggccagatg gtaagccctc 4680  
ccgtatcgta gttatctaca cgacggggag tcaggcaact atggatgaac gaaatagaca 4740  
gatcgctgag ataggtgcct cactgattaa gcattggtaa ctgtcagacc aagtttactc 4800  
atatatactt tagattgatt taaaacttca tttttaattt aaaaggatct aggtgaagat 4860  
cctttttgat aatctcatga ccaaaatccc ttaacgtgag ttttcgttcc actgagcgtc 4920  
agaccccgta gaaaagatca aaggatcttc ttgagatcct ttttttctgc gcgtaatctg 4980  
ctgcttgcaa acaaaaaaac caccgctacc agcgggtggt tgtttgccgg atcaagagct 5040  
accaactctt tttccgaagg taactggctt cagcagagcg cagataccaa atactgtcct 5100  
tctagtgtag ctgtagttag gccaccactt caagaactct gtagcaccgc ctacatacct 5160  
cgctctgcta atcctgttac cagtggctgc tgccagtggc gataagtcgt gtcttaccgg 5220  
gttggaactca agacgatagt taccggataa ggccgcagcgg tcgggctgaa cgggggggtc 5280  
gtgcacacag cccagcttgg agcgaacgac ctacaccgaa ctgagatacc tacagcgtga 5340

B1

B1

gctatgagaa agcgccacgc ttcccgaagg gagaaaggcg gacaggtatc cggtaagcgg	5400
cagggtcgga acaggagagc gcacgagggg gcttccaggg ggaaacgcct ggtatcttta	5460
tagtcctgtc gggtttcgcc acctctgact tgagcgtcga tttttgtgat gctcgtcagg	5520
ggggcggagc ctatggaaaa acgccagcaa cgcggccttt ttacggttcc tggccttttg	5580
ctggcctttt gctcacatgt tctttcctgc gttatcccct gattctgtgg ataaccgtat	5640
taccgccttt gagtgagctg ataccgctcg ccgcagccga acgaccgagc gcagcagctc	5700
agtgagcgag gaagcgggaag agcgctgat gcggtatttt ctccttacgc atctgtgcgg	5760
tatttcacac cgcataatth tgtaaaaatt cgcgttaaht ttttgtaaa tcagctcatt	5820
ttttaaccaa taggccgaaa tcggcaaaat cccttataaa tcaaaagaat agacegagat	5880
agggttgagt gttgttccag tttggaacaa gagtccacta ttaaagaacg tggactccaa	5940
cgtcaaaggc cgaanaaccg tctatcaggg cgatggccca ctacgtgaac catcaccta	6000
atcaagtttt ttggggtcga ggtgccgtaa agcactaaat cggaaaccta aaggagagccc	6060
ccgatttaga gcttgacggg gaaagccggc gaacgtggcg agaaaggaag ggaagaaagc	6120
gaaaggagcg ggcgctaggg cgctggcaag tgtagcggtc acgctgcgcg taaccaccac	6180
acccgccgcg cttaatgcgc cgctacaggg cgcgtccatt cgccattcag gctgctatgg	6240
tgcaactctca gtacaatctg ctctgatgcc gcatagttaa gccagtatac actccgctat	6300
cgctacgtga ctgggtcatg gctgcgcccc gacacccgcc aacacccgct gacgcgcctt	6360
gacgggcttg tctgtctccg gcatccgctt acagacaagc tgtgaccgtc tccgggagct	6420
gcatgtgtca gaggttttca ccgtcatcac cgaacgcgcg gaggcagcag atcaattcgc	6480
gcgcgaaggc gaagcggcat gcatttacgt tgacaccatc gaatggtgca aaacctttcg	6540
cggtatggca tgatagcgcc cggaagagag tcaattcagg gtggtgaatg tgaaccagt	6600
aacgttatac gatgtcgcag agtatgccg tgtctcttat cagaccgttt cccgcgtgg	6660
gaaccaggcc agccacgttt ctgcgaaaac gcgggaaaaa gtggaagcgg cgatggcgga	6720
gctgaattac attcccaacc gcgtggcaca acaactggcg ggcaaacagt cgttgctgat	6780
tggcgttgcc acctccagtc tggccctgca cgcgccgtcg caaattgtcg cggcgattaa	6840
atctcgcgcc gatcaactgg gtgccagcgt ggtggtgtcg atggtagaac gaagcggcgt	6900
cgaagcctgt aaagcggcgg tgcacaatct tctcgcgcaa cgcgtcagtn gggctgatca	6960
ttaa	6964

<210> 133

<211> 5957

<212> DNA

<213> pDEST5

<220>

<221> gene

<222> (181)..(305)

<223> attR1

<220>

<221> gene

<222> (555)..(1214)

<223> CmR

<220>

<221> gene

<222> (1334)..(1418)

<223> inactivated ccdA

<220>

<221> gene

<222> (1556)..(1861)

<223> ccdB

<220>

<221> gene

<222> (1902)..(2026)

<223> attR2

<220>

<221> gene

<222> (2278)..(2733)

B1



<223> f1 (f1 intergenic region)

<220>

<221> gene

<222> (2865) .. (3722)

<223> ampR

<220>

<221> gene

<222> (5378) .. (5538)

<223> ori

<220>

<221> gene

<222> (4756) .. (5922)

<223> lacI

B1

<400> 133  
aggcacccca ggcttttacac tttatgcttc cggctcgtat gttgtgtgga attgtgagcg 60  
gataacaatt tcacacagga aacagctatg accatgatta cgccaagctc taatacgact 120  
cactataggg aaagctggta cgcctgcagg taccgggtccg gaattcccgg gtcgacgac 180  
acaagtttgt acaaaaaagc tgaacgagaa acgtaaaatg atataaatat caatatatta 240  
aattagattt tgcataaaaa acagactaca taatactgta aaacacaaca tatccagtca 300  
ctatggcggc cgctaagttg gcagcatcac cgcacgcact ttgcgccgaa taaatacctg 360  
tgacggaaga tcacttcgca gaataaataa atcctgggtgt ccctgttgat accgggaagc 420  
cctggggccaa ctttttggcga aaatgagacg ttgatcggca cgtaagaggt tccaactttc 480  
accataatga aataagatca ctaccgggcg tatttttttga gttatcgaga ttttcaggag 540  
ctaaggaagc taaaatggag aaaaaaatca ctggatatac caccgttgat atatcccaat 600  
ggcatcgtaa agaacatttt gaggcatttc agtcagttgc tcaatgtacc tataaccaga 660  
ccgttcagct ggatattacg gcctttttta agaccgtaaa gaaaaataag cacaagtttt 720  
atccggcctt tattcacatt cttgccgcgc tgatgaatgc tcatccggaa ttccgtatgg 780  
caatgaaaga cggtgagctg gtgatatggg atagtgttca cccttggtac accgttttcc 840

atgagcaaac tgaaacgttt tcatcgctct ggagtgaata ccacgacgat ttccggcagt 900  
 ttctacacat atattcgcaa gatgtggcgt gttacgggtga aaacctggcc tatttcacct 960  
 aagggtttat tgagaatatg tttttcgtct cagccaatcc ctgggtgagt ttcaccagtt 1020  
 ttgatttaaa cgtggccaat atggacaact tcttcgcccc cgttttcacc atgggcaaat 1080  
 attatacgca aggcgacaag gtgctgatgc cgctggcgat tcaggttcat catgccgtct 1140  
 gtgatggctt ccatgtcggc agaatgctta atgaattaca acagtactgc gatgagtggc 1200  
 agggcggggc gtaaacgcgt ggatccggct tactaaaagc cagataacag tatgctgatt 1260  
 tgcgcgctga tttttgcggg ataagaatat atactgatat gtatacccca agtatgtcaa 1320  
 aaagaggtgt gctatgaagc agcgtattac agtgacagtt gacagcgaca gctatcagtt 1380  
 gctcaaggca tatatgatgt caatatctcc ggtctggtaa gcacaacat gcagaatgaa 1440  
 gcccgctcgtc tgcgtgccga acgctggaaa gcggaataac aggaagggat ggctgaggtc 1500  
 gcccggttta ttgaaatgaa cggctctttt gctgacgaga acagggactg gtgaaatgca 1560  
 gtttaagggt tacacctata aaagagagag ccgttatcgt ctgtttgtgg atgtacagag 1620  
 tgatattatt gacacgcccg ggcgacggat ggtgatcccc ctggccagtg cacgtctgct 1680  
 gtcagataaa gtctcccgtg aactttaccc ggtggtgcat atcgggggatg aaagctggcg 1740  
 catgatgacc accgatatgg ccagtgtgcc ggtctccgtt atcggggaag aagtggctga 1800  
 tctcagccac cgcgaaaatg acatcaaaaa cgccattaac ctgatgttct ggggaatata 1860  
 aatgtcaggc tcccttatac acagccagtc tgcaggtcga ccatagtgac tggatatgtt 1920  
 gtgttttaca gtattatgta gtctgttttt tatgcaaaat ctaatttaat atattgatat 1980  
 ttatatcatt ttacgtttct cgttcagctt tcttgtaaca agtggtgatc actagtcggc 2040  
 ggccgctcta gaggatccaa gcttacgtac gcgatgcacg gacgtcatag ctcttctata 2100  
 gtgtcaccta aattcaattc actggccgct gttttacaac gtcgtgactg ggaaaaccct 2160  
 ggcgttaccc aacttaatcg ccttgacgca catccccctt tcgccagctg gcgtaatagc 2220  
 gaagaggccc gcaccgatcg ccttcccaa cagttgcgca gcctgaatgg cgaatggacg 2280  
 cgccctgtag cggcgcatta agcgcggcgg gtgtggtggt tacgcgcagc gtgaccgcta 2340  
 caettgccag cgccctagcg cccgtcctt tcgctttctt ccttccctt ctcgccacgt 2400  
 tcgccggctt tccccgtcaa gctctaaatc gggggctccc tttagggttc cgatttagtg 2460  
 ctttacggca cctcgacccc aaaaaacttg attaggggtga tggttcacgt agtgggcat 2520  
 cgccctgata gacggttttt cgccctttga cgttgagtc cacgttcttt aatagtggac 2580  
 tcttggtcca aactggaaca acactcaacc ctatctcggt ctattctttt gatttataag 2640  
 ggattttgcc gatttcggcc tattggttaa aaaatgagct gatttaacaa aaatttaacg 2700

B1

B1

cgaatttttaa	caaaatatta	acgttttacia	tttcaggtgg	cactttttcgg	ggaaatgtgc	2760
gcggaacccc	tatttgttta	tttttctaaa	tacattcaaa	tatgtatccg	ctcatgagac	2820
aataaccctg	ataaatgctt	caataatatt	gaaaaaggaa	gagtatgagt	attcaacatt	2880
tccgtgtcgc	ccttattccc	ttttttgcgg	cattttgcct	tcctgttttt	gctcaccag	2940
aaacgctggt	gaaagtaaaa	gatgctgaag	atcagttggg	tgcacgagtg	ggttacatcg	3000
aactggatct	caacagcggg	aagatccttg	agagttttcg	ccccgaagaa	cgttttccaa	3060
tgatgagcac	ttttaaagtt	ctgctatgtg	gcgcgggtatt	atcccgtatt	gacgccgggc	3120
aagagcaact	cggtcgccgc	atacactatt	ctcagaatga	cttggttgag	tactcaccag	3180
tcacagaaaa	gcattcttacg	gatggcatga	cagtaagaga	attatgcagt	gctgccataa	3240
ccatgagtga	taacactgcg	gccaaacttac	ttctgacaac	gatcggagga	ccgaaggagc	3300
taaccgcttt	tttgacaaac	atggggggatc	atgtaactcg	ccttgatcgt	tgggaaccgg	3360
agctgaatga	agccatacca	aacgacgagc	gtgacaccac	gatgcctgta	gcaatggcaa	3420
caacgttgcg	caaaactatta	actggcgaaac	tacttactct	agcttcccgg	caacaattaa	3480
tagactggat	ggaggcggat	aaagttgcag	gaccacttct	gcgctcggcc	cttcgggctg	3540
gctggtttat	tgctgataaa	tctggagccg	gtgagcgtgg	gtctcgcggg	atcattgcag	3600
cactggggcc	agatggtaag	ccctcccgtg	tcgtagttat	ctacacgacg	gggagtcagg	3660
caactatgga	tgaacgaaat	agacagatcg	ctgagatagg	tgccctactg	attaagcatt	3720
ggtaactgtc	agaccaagtt	tactcatata	tacttttagat	tgatttataaa	cttcattttt	3780
aatttataag	gatctaggtg	aagatccttt	ttgataatct	catgacccaa	atcccttaac	3840
gtgagttttc	gttccactga	gcgtcagacc	ccgtagaaaa	gatcaaagga	tcttcttgag	3900
atcctttttt	tctgcgcgta	atctgctgct	tgcaaacaaa	aaaaccaccg	ctaccagcgg	3960
tggtttgttt	gccggatcaa	gagctaccaa	ctctttttcc	gaaggtaact	ggcttcagca	4020
gagcgcagat	accaaatact	gtccttctag	tgtagccgta	gttaggccac	cacttcaaga	4080
actctgtagc	accgcctaca	tacctcgctc	tgetaatcct	gttaccagtg	gctgctgcca	4140
gtggcgataa	gtcgtgtctt	accgggttgg	actcaagacg	atagttaccg	gataaggcgc	4200
agcggtcggg	ctgaacgggg	ggttcgtgca	cacagcccag	cttgagagcga	acgacctaca	4260
ccgaactgag	atacctacag	cgtgagcatt	gagaaagcgc	cacgcttccc	gaagggagaa	4320
aggcggacag	gtatccggta	agcggcaggg	tcggaacagg	agagcgcacg	aggagcttc	4380
cagggggaaa	cgcctgggtat	ctttatagtc	ctgtcggggt	tcgccacctc	tgacttgagc	4440
gtcgattttt	gtgatgctcg	tcaggggggc	ggagcctatg	gaaaaacgcc	agcaacgcgg	4500
cctttttacg	gttcctggcc	ttttgctggc	cttttgetca	catgttcttt	cctgcgttat	4560

cccctgattc tgtggataac cgtattaccg ccttttgagtg agctgatacc gctcgccgca 4620  
gccgaacgac cgagcgcagc gagtcagtga gcgaggaagc ggaagagcgc ccaatacgca 4680  
aaccgcctct ccccgcgcggt tggccgattc attaatgcag agcttgcaat tcgcgcgcgga 4740  
aggcgaagcg gcattttacgt tgacaccatc gaatggcgca aaacctttcg cggatatggca 4800  
tgatagcgcc cggaagagag tcaattcagg gtggtgaatg tgaaaccagt aacgttatac 4860  
gatgtcgag agtatgccgg tgtctcttat cagaccgttt cccgctgggt gaaccaggcc 4920  
agccacgttt ctgcgaaaac gcgggaaaaa gtggaagcgg cgatggcgga gctgaattac 4980  
attcccaacc gcgtggcaca acaactggcg ggcaaacagt cgttgctgat tggcgttgcc 5040  
acctccagtc tggccctgca cgcgcgcgtc caaattgtcg cggcgattaa atctcgcgcc 5100  
gatcaactgg gtgccagcgt ggtggtgtcg atggtagaac gaagcggcgt cgaagcctgt 5160  
aaagcggcgg tgcacaatct tctcgcgcaa cgggtcagtg ggctgatcat taactatccg 5220  
ctggatgacc aggatgccat tgctgtggaa gctgcctgca ctaatgttcc ggcgttattt 5280  
cttgatgtct ctgaccagac acccatcaac agtattattt tctcccatga agacgggtacg 5340  
cgactgggcg tggagcatct ggtcgcatth ggtcaccagc aaatcgcgct gttagcgggc 5400  
ccattaagtt ctgtctcggc gcgtctgcgt ctggctggct ggcataaata tctcactcgc 5460  
aatcaaattc agccgatagc ggaacgggaa ggcgactgga gtgccatgtc cggttttcaa 5520  
caaaccatgc aaatgctgaa tgagggcatc gttcccactg cgatgctgggt tgccaacgat 5580  
cagatggcgc tgggcgcaat gcgcgccatt accgagtcgg ggctgcgcgt tgggtgcggat 5640  
atctcggtag tgggatacga cgataccgaa gacagctcat gttatatccc gccgtcaacc 5700  
accatcaaac aggattttcg cctgctgggg caaaccagcg tggaccgctt gctgcaactc 5760  
tctcagggcc aggcggtgaa gggcaatcag ctggtgcccg tctcactgggt gaaaagaaaa 5820  
accaccctgg cgccaatac gcaaaccgcc tctccccgcg cgttggccga ttcattaatg 5880  
cagctggcac gacaggtttc ccgactggaa agcgggcagt gagcgcaacg caattaatgt 5940  
gagttagctc actcatt 5957

<210> 134

<211> 5957

<212> DNA

<213> pDEST6

<220>

<221> gene

<222> (142)..(266)

<223> attR1

<220>

<221> gene

<222> (516)..(1175)

<223> CmR

<220>

<221> gene

<222> (1295)..(1379)

<223> inactivated ccdA

<220>

<221> gene

<222> (1517)..(1822)

<223> ccdB

<220>

<221> gene

<222> (1863)..(1987)

<223> attR2

<220>

<221> gene

<222> (2203)..(3369)

<223> lacI

<220>

<221> gene

<222> (4403)..(5260)

B1

<223> ampR

<220>

<221> gene

<222> (5392) .. (5847)

<223> f1 (f1 intergenic region)

<400> 134

taacgccagg gttttcccag tcacgacgtt gtaaaacgac ggccagtga ttgaatttag 60  
gtgacactat agaagagcta tgacgtcgca tgcacgcgta cgtaagcttg gatcctctag 120  
agcggccgcc gactagtgat cacaagtttg tacaaaaaag ctgaacgaga aacgtaaaat 180  
gatataaata tcaatatatt aaattagatt ttgcataaaa aacagactac ataatactgt 240  
aaaacacaac atatccagtc actatggcgg ccgctaagtt ggcagcatca cccgacgcac 300  
tttgcgccga ataaatacct gtgacggaag atcacttcgc agaataaata aatcctgggtg 360  
tccctgttga taccgggaag ccctggggcca acttttggcg aaaatgagac gttgatcggc 420  
acgtaagagg ttccaacttt caccataatg aaataagatc actaccgggc gtattttttg 480  
agttatcgag attttcagga gctaaggaag ctaaaatgga gaaaaaaatc actggatata 540  
ccaccgttga tatatcccaa tggcatcgta aagaacattt tgaggcattt cagtcagttg 600  
ctcaatgtac ctataaccag accgttcagc tggatattac ggccttttta aagaccgtaa 660  
agaaaaataa gcacaagttt tatccggcct ttattcacat tcttgcccg cctgatgaatg 720  
ctcatccgga attccgtatg gcaatgaaag acggtgagct ggtgatatgg gatagtgttc 780  
acccttggtta caccgttttc catgagcaaa ctgaaacggt ttcatcgctc tggagtgaat 840  
accacgacga tttccggcag tttctacaca tatattcgca agatgtggcg tgttacgggtg 900  
aaaacctggc ctatttcctt aaagggttta ttgagaatat gtttttcgtc tcagccaatc 960  
cctgggtgag tttcaccagt ttgatttaa acgtggccaa tatggacaac ttcttcgccc 1020  
ccgttttcac catgggcaaa tattatacgc aaggcgacaa ggtgctgatg ccgctggcga 1080  
ttcaggttca tcatgccgtc tgtgatggct tccatgtcgg cagaatgctt aatgaattac 1140  
aacagtactg cgatgagtgg cagggcgggg cgtaaacgcg tggatccggc ttactaaaag 1200  
ccagataaca gtatgcgtat ttgcgcgctg atttttgcgg tataagaata tatactgata 1260  
tgtatacccg aagtatgtca aaaagaggtg tgctatgaag cagcgtatta cagtgcagct 1320  
tgacagcgac agctatcagt tgctcaaggc atatatgatg tcaatatctc cggctctggta 1380  
agcacaacca tgcagaatga agcccgtcgt ctgcgtgccg aacgctggaa agcggaaaat 1440

caggaagggga tggctgaggt cgcccggttt attgaaatga acggctcttt tgctgacgag 1500  
aacagggact ggtgaaatgc agtttaaggt ttacacctat aaaagagaga gccgttatcg 1560  
tctgtttgtg gatgtacaga gtgatattat tgacacgccc gggcgacgga tggatgaccc 1620  
cctggccagt gcacgtctgc tgtcagataa agtctcccggt gaactttacc cgggtggtgca 1680  
tatcggggat gaaagctggc gcatgatgac caccgatatg gccagtgtgc cggctctccgt 1740  
tatcggggaa gaagtggctg atctcagcca ccgcgaaaat gacatcaaaa acgccattaa 1800  
cctgatgttc tggggaatat aaatgtcagg ctcccttata cacagccagt ctgcaggctcg 1860  
accatagtga ctggatatgt tgtgttttac agtattatgt agtctgtttt ttatgcaaaa 1920  
tctaatttaa tatattgata tttatatcat ttacgtttc tcgttcagct ttcttgtaca 1980  
aagtgggtgat cgtcgaccgg ggaattccgg accggtacct gcaggcgtag cagctttccc 2040  
tatagtgagt cgtattagag cttggcgtaa tcatggatcat agctgtttcc tgtgtgaaat 2100  
tggtatccgc tcacaattcc acacaacata cgagccggaa gcataaagtg taaagcctgg 2160  
gggtgcctaata gagtgagcta actcacatta attgcgttgc gctcactgcc cgctttccag 2220  
tcgggaaacc tgtcgtgcca gctgcattaa tgaatcggcc aacgcgcggg gagaggcggg 2280  
ttgcgtattg ggcgccaggg tgggtttttct tttcaccagt gagacgggca acagctgatt 2340  
gcccttcacc gctggccct gagagagttg cagcaagcgg tccacgctgg tttgccccag 2400  
caggcgaaaa tctgtttga tgggtggtga cggcgggata taacatgagc tgtcttcggg 2460  
atcgtcgtat ccactaccg agatatccgc accaacgcgc agcccggact cggtaatggc 2520  
gcgcattgag ccagcgcca tctgatcggt ggcaaccagc atcgcatggg gaacgatgcc 2580  
ctcattcagc atttgcatgg tttgttgaaa accggacatg gcactccagt cgccttcccg 2640  
ttccgctatc ggctgaattt gattgcgagt gagatattta tgccagccag ccagacgcag 2700  
acgcgccgag acagaactta atgggcccgc taacagcgcg atttgctggg gacccaatgc 2760  
gaccagatgc tccacgcca gtcgcgtacc gtcttcatgg gagaaaataa tactgttgat 2820  
gggtgtctgg tcagagacat caagaaataa cgccggaaca ttagtgaggg cagcttccac 2880  
agcaatggca tctgtgtcat ccagcggata gttaatgac agcccactga cccgttgccg 2940  
gagaagattg tgcaccgccg ctttacaggc ttcgacgccg cttcgttcta ccatcgacac 3000  
caccacgctg gcaccagtt gatcggcgcg agatttaatc gccgcgacaa tttgcgacgg 3060  
cgctgacagg gccagactgg aggtggcaac gccaatcagc aacgactgtt tgcccggcag 3120  
ttgttgtgcc acgcggttgg gaatgtaatt cagctccgcc atcgccgctt ccactttttc 3180  
ccgcgttttc gcagaaacgt ggctggcctg gttcaccacg cgggaaacgg tctgataaga 3240  
gacaccggca tactctgcca catcgataa cgttactggg ttcacattca ccaccctgaa 3300

B1

ttgactctct tccgggcgct atcatgccat accgcgaaag gttttgcgcc attcgatggg 3360  
gtcaacgtaa atgccgcttc gccttcgcgc gogaattgca agctctgcat taatgaatcg 3420  
gccaacgcgc ggggagaggc ggtttgcgta ttgggcgctc ttccgcttcc tcgctcactg 3480  
actcgctgcg ctccggtcgtt cggctgcggc gagcggatc agctcactca aaggcggtaa 3540  
tacggttatc cacagaatca ggggataacg caggaaagaa catgtgagca aaaggccagc 3600  
aaaaggccag gaaccgtaaa aaggccgcgt tgctggcggt tttccatagg ctccgcccc 3660  
ctgacgagca tcacaaaaat cgacgctcaa gtcagagggt gcgaaacccg acaggactat 3720  
aaagatacca ggcgtttccc cctggaagct ccctcgtagc ctctcctggt ccgaccctgc 3780  
cgcttaccgg atacctgtcc gcctttctcc ctccgggaag cgtggcgctt tctcaatgct 3840  
cacgctgtag gtatctcagt tcgggtgtagg tcgttcgctc caagctgggc tgtgtgcacg 3900  
aacccccgt tcagcccgac cgctgcgctt tatccggtaa ctatcgtctt gagtccaacc 3960  
cggtaaagaca cgacttatcg ccactggcag cagccactgg taacaggatt agcagagcga 4020  
ggatatgtagg cgggtgctaca gagttcttga agtggtggcc taactacggc tacactagaa 4080  
ggacagtatt tggatatctgc gctctgctga agccagttac ctccggaaaa agagttggta 4140  
gctcttgatc cggcaaacia accaccgctg gtagcgggtg tttttttggt tgcaagcagc 4200  
agattacgcg cagaaaaaaaa ggatctcaag aagatccttt gatcttttct acgggggtctg 4260  
acgctcagtg gaacgaaaac tcacgttaag ggattttggt catgagatta tcaaaaagga 4320  
tcttcacctg gatcctttta aattaaaaat gaagttttta atcaatctaa agtatatatg 4380  
agtaaacttg gtctgacagt taccaatgct taatcagtga ggcacctatc tcagcgatct 4440  
gtctatttcg ttcattccata gttgcctgac tccccgtcgt gtagataact acgatacggg 4500  
agggcttacc atctggcccc agtgctgcaa tgataccgcg agaccacgc tcaccggctc 4560  
cagatttatac agcaataaac cagccagccg gaagggccga gcgcagaagt ggtcctgcaa 4620  
ctttatccgc ctccatccag tctattaatt gttgccggga agctagagta agtagttcgc 4680  
cagttaatag tttgcgcaac gttgttgcca ttgctacagg catcgtgggtg tcacgctcgt 4740  
cgtttggtat ggcttcattc agctccggtt cccaacgata aaggcgagtt acatgatccc 4800  
ccatgttggt caaaaaagcg gttagctcct tcggctcctc gatcgttggtc agaagtaagt 4860  
tgggcgcagt gttatcactc atggttatgg cagcactgca taattctctt actgtcatgc 4920  
catccgtaag atgcttttct gtgactgggt agtactcaac caagtcattc tgagaatagt 4980  
gtatgccccg accgagttgc tcttgccccg cgtcaataac ggataatacc gcgccacata 5040  
gcagaacttt aaaagtgtc atcattggaa aacgttcttc ggggcgaaaa ctctcaagga 5100  
tcttaccgct gttgagatcc agttcgatgt aaccactcgc tgcacccaac tgatcttcag 5160

B1



catctttttac tttcaccage gtttctgggt gagcaaaaac aggaaggcaa aatgccgcaa 5220  
aaaaggggaat aagggcgaca cggaaatggt gaatactcat actcttcctt tttcaatatt 5280  
attgaagcat ttatcagggt tattgtctca tgagcggata catatttgaa tgtatttaga 5340  
aaaataaaca aataggggtt ccgcgcacat ttccccgaaa agtgccacct gaaattgtaa 5400  
acgttaatat tttgttaaaa ttgcggttaa atttttgta aatcagctca ttttttaacc 5460  
aataggccga aatcggcaaa atcccttata aatcaaaaaga atagaccgag atagggttga 5520  
gtgttggtcc agtttggaac aagagtccac tattaaagaa cgtggactcc aacgtcaaag 5580  
ggcgaaaaac cgtctatcag ggcgatggcc cactacgtga accatcaccc taatcaagtt 5640  
ttttggggtc gaggtgccgt aaagcactaa atcggaaacc taaaggagc ccccgattta 5700  
gagcttgacg gggaaagccg gcgaacgtgg cgagaaagga agggaagaaa gcgaaaggag 5760  
cgggcgctag ggcgctggca agtgtagcgg tcacgctgcg cgtaaccacc acaccgccg 5820  
cgcttaatgc gccgctacag ggcgcgtcca ttgccattc aggctgcgca actggtggga 5880  
agggcgatcg gtgcgggcct cttegtatt acgccagctg gcgaaagggg gatgtgctgc 5940  
aaggcgatta agttggg 5957

<210> 135

<211> 6025

<212> DNA

<213> pDEST7

<220>

<221> gene

<222> (67) .. (589)

<223> CMV promoter

<220>

<221> gene

<222> (782) .. (906)

<223> attR1

<220>

<221> gene

<222> (1015)..(1674)

<223> CmR

<220>

<221> gene

<222> (1794)..(1878)

<223> inactivated ccdA

<220>

<221> gene

<222> (2016)..(2321)

<223> ccdB

<220>

<221> gene

<222> (2362)..(2486)

<223> attR2

<220>

<221> gene

<222> (2671)..(3033)

<223> small t & polyA

<220>

<221> gene

<222> (3227)..(3502)

<223> f1

<220>

<221> gene

<222> (3962)..(4822)

B1

<223> ampR

<220>

<221> gene

<222> (5022) .. (5661)

<223> ori

<400> 135

attatcatga cattaaccta taaaaatagg cgtagtacga ggccctttca ctcattagat 60  
gcatgtcgtt acataactta cggtaaattgg cccgcctggc tgaccgcca acgacccccg 120  
cccattgacg tcaataatga cgtatgttcc catagtaacg ccaataggga ctttccattg 180  
acgtcaatgg gtggagtatt tacggtaaac tgcccacttg gcagtacatc aagtgtatca 240  
tatgccaaagt acgcccccta ttgacgtcaa tgacggtaaa tggcccgctt ggcattatgc 300  
ccagtacatg accttatggg actttcctac ttggcagtac atctacgtat tagtcacgc 360  
tattaccatg gtgatgcggg tttggcagta catcaatggg cgtggatagc ggtttgactc 420  
acgggggattt ccaagtctcc accccattga cgtcaatggg agtttgtttt ggcacaaaaa 480  
tcaacgggac tttccaaaat gtcgtaacaa ctccgccccca ttgacgcaaa tgggcggtag 540  
gcgtgtacgg tgggaggtct atataagcag agtcgttita gtgaaccgtc agatcgcttg 600  
gagacgccat ccacgctgtt ttgacctcca tagaagacac cgggaccgat ccagcctccg 660  
gactctagcc taggccgagg agcggataac aatttcacac aggaaacagc tatgaccatt 720  
aggcctttgc aaaaagctat ttaggtgaca ctatagaagg tacgcctgca ggtaccggat 780  
cacaagtttg tacaaaaaag ctgaacgaga aacgtaaaat gatataaata tcaatatatt 840  
aaattagatt ttgcataaaa aacagactac ataatactgt aaaacacaac atatccagtc 900  
actatggcgg ccgcattagg caccacaggc tttacacttt atgcttccgg ctctataat 960  
gtgtggattt tgagttagga tccgtcgaga ttttcaggag ctaaggaagc taaaatggag 1020  
aaaaaaatca ctggatatac caccgttgat atatcccaat ggcacgtaa agaacatttt 1080  
gaggcatttc agtcagttgc tcaatgtacc tataaccaga ccgttcagct ggatattacg 1140  
gcctttttta agaccgtaaa gaaaaataag cacaagtttt atccggcctt tattcacatt 1200  
cttgcgccgc tgatgaatgc tcatccggaa ttccgtatgg caatgaaaga cggtgagctg 1260  
gtgatatggg atagtgttca cccttggtac accgttttcc atgagcaaac tgaaacgttt 1320  
tcatcgctct ggagtgaata ccacgacgat ttccggcagt ttctacacat atattcgcaa 1380  
gatgtggcgt gttacggtga aaacctggcc tatttcccta aagggtttat tgagaatatg 1440

B1

tttttcgtct cagccaatcc ctgggtgagt ttcaccagtt ttgatttaaa cgtggccaat 1500  
atggacaact tcttcgcccc cgttttcacc atgggcaaatt attatacgca aggcgacaag 1560  
gtgctgatgc cgctggcgat tcagggttcac catgccgtct gtgatggctt ccatgtcggc 1620  
agaatgctta atgaattaca acagtactgc gatgagtggc agggcggggc gtaaaccgct 1680  
ggatccggct tactaaaagc cagataacag tatgcgtatt tgcgcgctga tttttgcggc 1740  
ataagaatat atactgatat gtatacccgga agtatgtcaa aaagaggtgt gctatgaagc 1800  
agcgtattac agtgacagtt gacagcgaca gctatcagtt gctcaaggca tatatgatgt 1860  
caatatctcc ggtctggtaa gcacaacat gcagaatgaa gcccgtcgct tgcgtgccga 1920  
acgctggaat gcggaaaatc aggaagggat ggctgaggct gcccggttta ttgaaatgaa 1980  
cggctctttt gctgacgaga acagggactg gtgaaatgca gtttaaggct tacacctata 2040  
aaagagagag ccgttatcgt ctgtttgtgg atgtacagag tgatattatt gacacgccc 2100  
ggcgacggat ggtgatcccc ctggccagtg cacgtctgct gtcagataaa gtctcccgtg 2160  
aactttaccc ggtggtgcat atcggggatg aaagctggcg catgatgacc accgatatgg 2220  
ccagtgtgcc ggtctccgtt atcggggaag aagtggctga tctcagccac cgcgaaaatg 2280  
acatcaaaaa cgccattaac ctgatgttct ggggaatata aatgtcaggc tcccttatac 2340  
acagccagtc tgcaggtcga ccatagtgac tggatatgtt gtgttttaca gtattatgta 2400  
gtctgttttt tatgcaaaat ctaatttaac atattgatat ttatatcatt ttacgtttct 2460  
cgttcagctt tcttgtacaa agtgggtgat gcgtgcatgc gacgtcatag ctctctccct 2520  
atagttagtc gtattataag ctaggcactg gccgtcgctt tacaacgctg tgactgggaa 2580  
aactgctagc ttgggatctt tgtgaaggaa ccttacttct gtggtgtgac ataattggac 2640  
aaactaccta cagagattta aagctctaag gtaaataata aatttttaag tgtataatgt 2700  
gttaaaactag ctgcatatgc ttgctgcttg agagttttgc ttactgagta tgatttatga 2760  
aaatattata cacaggagct agtgattcta attgtttgtg tatttttagat tcacagtcct 2820  
aaggctcatt tcaggcccct cagtcctcac agtctgttca tgatcataat cagccatacc 2880  
acatttgtag aggttttact tgcttttaaa aacctcccac acctcccct gaacctgaaa 2940  
cataaaatga atgcaattgt tgttgtaaac ttgtttattg cagcttataa tggttacaaa 3000  
taaagcaata gcatcacaaa ttccacaaat aaagcatttt ttccactgca ttctagtgtg 3060  
ggtttgcca aactcatcaa tgtatcttat catgtctgga tcgatcctgc attaataaat 3120  
cggccaacgc gcggggagag gcgggttgcg tattggctgg cgtaatagcg aagaggccc 3180  
caccgatcgc ccttcccac agttgcgcag cctgaatggc gaatgggacg cgccctgtag 3240  
cggcgcatta agcgcggcgg gtgtggtggt tacgcgcagc gtgaccgcta cacttgccag 3300

B1

cgccctagcg cccgctcctt tcgctttctt ccttccctt ctcgccacgt tcgcgggctt 3360  
tccccgtcaa gctctaaatc gggggctccc tttaggggtc cgatttagtg ctttacggca 3420  
cctcgacccc aaaaaacttg attaggggtga tgggtcacgt agtgggcat cgccctgata 3480  
gacgggtttt cgccctttga cgttgagtc cacgttctt aatagtggac tcttgttcca 3540  
aactggaaca aactcaacc ctatctcgtt ctattctt gatttataag ggattttgcc 3600  
gatttcggcc tattgggtta aaaatgagct gatttaacaa aaatttaacg cgaattttta 3660  
caaaatatta acgtttacaa tttcaggtgg cacttttcgg ggaaatgtgc gcggaacccc 3720  
tatttgttta tttttctaaa tacattcaaa tatgtatccg ctcatgccag gtcttggtact 3780  
ggtgagaacg gcttgctcgg cagcttcgat gtgtgctgga gggagaataa aggtctaaga 3840  
tgtgcgatag agggaagtcg cattgaatta tgtgctgtgt agggatcgct ggtatcaaat 3900  
atgtgtgccc acccctggca tgagacaata accctgataa atgcttcaat aatattgaaa 3960  
aaggaagagt atgagtattc aacatttcgg tgcgcctt attccctttt ttgcggcatt 4020  
ttgccttctt gtttttgctc acccagaaac gctggtgaaa gtaaaagatg ctgaagatca 4080  
gttgggtgca cgagtgggtt acatcgaact ggatctcaac agcggtaaga tccttgagag 4140  
ttttcgcccc gaagaacgtt ttccaatgat gagcactttt aaagttctgc tatgtggcgc 4200  
gggtattatc cgtattgacg ccgggcaaga gcaactcggc cgccgcatac actattctca 4260  
gaatgacttg gttgagtact caccagtcac agaaaagcat cttacggatg gcatgacagt 4320  
aagagaatta tgcagtgtc ccataaccat gagtgataac actgcggcca acttacttct 4380  
gacaacgacg ggaggaccga aggagctaac cgcttttttg cacaacatgg gggatcatgt 4440  
aactgcctt gatcgttggg aaccggagct gaatgaagcc ataccaaacg acgagcgtga 4500  
caccacgatg cctgtagcaa tggcaacaac gttgcgcaaa ctattaactg gcgaactact 4560  
tactctagct tcccggcaac aattaataga ctggatggag gcggataaag ttgcaggacc 4620  
acttctgcgc tcggcccttc cggctggctg gtttattgct gataaatctg gagccggtga 4680  
gcgtgggtct cgcggtatca ttgcagcact ggggccagat ggtaagccct cccgtatcgt 4740  
agttatctac acgacgggga gtcaggcaac tatggatgaa cgaaatagac agatcgctga 4800  
gatagggtgcc tcaactgatta agcattggta actgtcagac caagtttact catatatact 4860  
ttagattgat ttaaaacttc atttttaatt taaaaggatc taggtgaaga tcctttttga 4920  
taatctcatg ctataacttc gtataatgta tgctatacga agttatggca tgacaaaaat 4980  
cccttaacgt gagttttcgt tccactgagc gtcagacccc gtagaaaaga tcaaaggatc 5040  
ttcttgagat cctttttttc tgcgcgtaat ctgctgcttg caaacaaaaa aaccaccgct 5100  
accagcgggtg gtttgtttgc cggatcaaga gctaccaact ctttttccga aggtaactgg 5160

B1

cttcagcaga ggcagatac caaataactgt ccttctagt tagccgtagt taggccacca 5220  
cttcaagaac tctgtagcac cgcctacata cctcgtctctg ctaatcctgt taccagtggc 5280  
tgctgccagt ggcgataagt cgtgtcttac cgggttggac tcaagacgat agttaccgga 5340  
taaggcgag cgytcgggct gaacggggggg ttcgtgcaca cagcccagct tggagcgaac 5400  
gacctacacc gaactgagat acctacagcg tgagcattga gaaagcgcca cgcttcccga 5460  
agggagaaaag gcggacaggt atccggtaag cggcagggtc ggaacaggag agcgcacgag 5520  
ggagcttcca gggggaaacg cctggtatct ttatagtcct gtcgggttcc gccacctctg 5580  
acttgagcgt cgatttttct gatgctcgtc agggggggcgg agcctatgga aaaacgccag 5640  
caacgcggcc tttttacggt tcttgccctt ttgctggcct tttgctcaca tgttctttcc 5700  
tgcgttatcc cctgattctg tggataaccg tattaccgcc tttgagttag ctgataccgc 5760  
tcgccgcagc cgaacgaccg agcgcagcga gtcagttagc gaggaagcgg aagagcgccc 5820  
aatacgcaaa ccgcctctcc ccgcgcgttg gccgattcat taatgcagag cttgcaattc 5880  
gcgcgttttt caatattatt gaagcattta tcagggttat tgtctcatga gcggatacat 5940  
atltgaatgt atttagaaaa ataaacaaat aggggttccg cgcacatttc cccgaaaagt 6000  
gccacctgac gtctaagaaa ccatt 6025

<210> 136

<211> 6526

<212> DNA

<213> pDEST8

<220>

<221> gene

<222> (23)..(152)

<223> Ppolh

<220>

<221> gene

<222> (160)..(284)

<223> attR1

<220>

<221> gene  
<222> (534) .. (1193)  
<223> CmR

<220>  
<221> gene  
<222> (1313) .. (1397)  
<223> inactivated ccdA

B1  
<220>  
<221> gene  
<222> (1535) .. (1840)  
<223> ccdB

<220>  
<221> gene  
<222> (1881) .. (2005)  
<223> attR2

<220>  
<221> gene  
<222> (2766) .. (3146)  
<223> f1

<220>  
<221> gene  
<222> (3240) .. (4090)  
<223> ampR

<220>  
<221> gene

<222> (4289) .. (4869)

<223> ori

<220>

<221> gene

<222> (5564) .. (6496)

<223> genR

<400> 136

B1

cgtatactcc	ggaatattaa	tagatcatgg	agataattaa	aatgataacc	atctcgcaaa	60
taaataagta	ttttactggt	ttcgtaacag	ttttgtaata	aaaaaaccta	taaatattcc	120
ggattattca	taccgtccca	ccatcgggcg	cggatcatca	caagtttgta	caaaaaagct	180
gaacgagaaa	cgtaaaatga	tataaatatc	aatatattaa	attagatttt	gcataaaaaa	240
cagactacat	aatactgtaa	aacacaacat	atccagtcac	tatggcggcc	gctaagttgg	300
cagcatcacc	cgacgcactt	tgcgccgaat	aaataacctgt	gacggaagat	cacttcgcag	360
aataaataaa	tcctggtgtc	cctgttgata	ccgggaagcc	ctgggcccaac	ttttggcgaa	420
aatgagacgt	tgatcggcac	gtaagagggt	ccaactttca	ccataatgaa	ataagatcac	480
taccgggcgt	attttttgag	ttatcgagat	tttcaggagc	taaggaagct	aaaatggaga	540
aaaaaatcac	tggatatacc	accgttgata	tatcccaatg	gcatcgtaaa	gaacattttg	600
aggcatttca	gtcagttgct	caatgtacct	ataaccagac	cgttcagctg	gatattacgg	660
ccttttttaa	gaccgtaaa	aaaaataagc	acaagtttta	tccggccttt	attcacattc	720
ttgcccgcct	gatgaatgct	catccggaat	tccgtatggc	aatgaaagac	ggtgagctgg	780
tgatatggga	tagtgttcac	ccttgttaca	ccgttttcca	tgagcaaact	gaaacgtttt	840
catcgctctg	gagtgaatac	cacgacgatt	tccggcagtt	tctacacata	tattcgcaag	900
atgtggcgctg	ttacggtgaa	aacctggcct	atttccctaa	agggtttatt	gagaatatgt	960
ttttcgctctc	agccaatccc	tgggtgagtt	tcaccagttt	tgattttaa	acgtggccaata	1020
tggacaactt	cttcgcccc	gttttcacca	tgggcaaata	ttatacgcaa	ggcgacaagg	1080
tgctgatgcc	gctggcgatt	caggttcatc	atgccgtctg	tgatggcttc	catgtcggca	1140
gaatgcttaa	tgaattacaa	cagtactgcg	atgagtggca	ggcgggggcg	taaacgcgtg	1200
gatccggctt	actaaaagcc	agataacagt	atgcgtattt	gcgcgctgat	ttttgcggta	1260
taagaatata	tactgatatg	tatacccgaa	gtatgtcaaa	aagagggtgtg	ctatgaagca	1320
gcgtattaca	gtgacagttg	acagcgacag	ctatcagttg	ctcaaggcat	atatgatgtc	1380



aatatctccg gtctggtaag cacaaccatg cagaatgaag cccgtcgtct gcgtgccgaa 1440  
cgctggaaag cggaaaatca ggaagggatg gctgaggctg cccggtttat tgaaatgaac 1500  
ggctcttttg ctgacgagaa cagggactgg tgaaatgcag ttttaaggttt acacctataa 1560  
aagagagagc cgttatcgtc tgtttgtgga tgtacagagt gatattattg acacgcccgg 1620  
gcgacggatg gtgatccccc tggccagtgc acgtctgctg tcagataaag tctcccgta 1680  
actttacccg gtggtgcata tcggggatga aagctggcgc atgatgacca ccgatatggc 1740  
cagtgtgccg gtctccgtta tcggggaaga agtggctgat ctcagccacc gcgaaaatga 1800  
catcaaaaaac gccattaacc tgatgttctg gggaatataa atgtcaggct cccttataca 1860  
cagccagtct gcaggctgac catagtgact ggatatgttg tgttttacag tattatgtag 1920  
tctgtttttt atgcaaaatc taatttaata tattgatatt tataatcattt tacgtttctc 1980  
gttcagcttt cttgtacaaa gtggtgatag cttgtcgaga agtactagag gatcataatc 2040  
agccatacca catttgtaga ggttttactt gctttaaaaa acctcccaca cctccccctg 2100  
aacctgaaac ataaaatgaa tgcaattggt gttgttaact tgtttattgc agcttataat 2160  
ggttacaaat aaagcaatag catcacaaat ttcacaaata aagcattttt ttcactgcat 2220  
tctagtgtg gtgtgtccaa actcatcaat gtatcttata atgtctggat ctgatcactg 2280  
cttgagccta ggagatccga accagataag tgaaatctag ttccaaacta ttttgtcatt 2340  
tttaattttc gtattagctt acgacgctac acccagttcc catctatttt gtcactcttc 2400  
cctaaataat ccttaaaaaac tccatttcca cccctcccag ttcccaacta ttttgtccgc 2460  
ccacagcggg gcatttttct tccgttatg tttttaatca aacatcctgc caactccatg 2520  
tgacaaaccg tcactctcgg ctactttttc tctgtcacag aatgaaaatt tttctgtcat 2580  
ctcttcgtta ttaatgtttg taattgactg aatatcaacg cttatttgca gcctgaatgg 2640  
cgaatggacg cgccctgtag cggcgcatta agcgcggcgg gtgtggtggt tacgcgcagc 2700  
gtgaccgcta cacttgccag cgccctagcg cccgctcctt tcgctttctt ccttccctt 2760  
ctcgccacgt tcgccggctt tcccgtcaa gctctaaatc gggggctccc tttagggttc 2820  
cgatttagtg ctttacggca cctcgacccc aaaaaacttg attagggatga tggttcacgt 2880  
agtgggccat cgccctgata gacggttttt cgccctttga cgttgagtc cacgttcttt 2940  
aatagtggac tcttgttcca aactggaaca aactcaacc ctatctcggg ctattctttt 3000  
gatttataag ggattttgcc gatttcggcc tattgggttaa aaaatgagct gatttaacaa 3060  
aaatttaacg cgaattttta caaaatatta acgtttacaa tttcaggtgg cacttttcgg 3120  
ggaaatgtgc gcggaacccc tatttgttta tttttctaaa tacattcaaa tatgtatccg 3180  
ctcatgagac aataaccctg ataaatgctt caataatatt gaaaaaggaa gagtatgagt 3240

B1

attcaacatt tccgtgtcgc ccttattccc ttttttgccg catttttgct tccgtgtttt 3300  
gctcaccag aaacgctggg gaaagtaaaa gatgctgaag atcagttggg tgcacgagtg 3360  
ggttacatcg aactggatct caacagcggg aagatccttg agagttttcg cccgaagaa 3420  
cgttttccaa tgatgagcac ttttaaagtt ctgctatgtg gcgcgggtatt atcccgtatt 3480  
gacgccgggc aagagcaact cggtcgccgc atacactatt ctcagaatga cttgggtgag 3540  
tactcaccag tcacagaaaa gcattctacg gatggcatga cagtaagaga attatgcagt 3600  
gctgccataa ccatgagtga taactctgcg gccaaacttac ttctgacaac gatcggagga 3660  
ccgaaggagc taaccgcttt tttgcacaac atgggggatc atgtaactcg cttgatcgt 3720  
tggaaccgg agctgaatga agccatacca aacgacgagc gtgacaccac gatgcctgta 3780  
gcaatggcaa caacgttgcg caaactatta actggcgaac tacttactct agcttcccg 3840  
caacaattaa tagactggat ggaggcggat aaagttgcag gaccacttct gcgctcggcc 3900  
cttccggtg gctggtttat tgctgataaa tctggagccg gtgagcgtgg gtctcgggt 3960  
atcattgcag cactggggcc agatggtaag cctcccgtat tcgtagttat ctacacgacg 4020  
gggagtcagg caactatgga tgaacgaaat agacagatcg ctgagatagg tgcctcactg 4080  
attaagcatt ggtaactgtc agaccaagtt tactcatata tactttagat tgatttaaaa 4140  
cttcattttt aatttaaaag gatctaggtg aagatccttt ttgataatct catgaccaa 4200  
atcccttaac gtgagttttc gttccactga gcgtcagacc ccgtagaaaa gatcaaagga 4260  
tcttcttgag atcctttttt tctgcgcgta atctgctgct tgcaaacaaa aaaaccaccg 4320  
ctaccagcgg tggtttggtt gccggatcaa gagctaccaa ctctttttcc gaaggtaact 4380  
ggcttcagca gagcgcagat accaaatact gtccttctag tgtagccgta gttaggccac 4440  
cacttcaaga actctgtagc accgctaca tacctcgtc tgctaatact gttaccagtg 4500  
gctgctgcca gtggcgataa gtcgtgtctt accgggttg actcaagacg atagttaccg 4560  
gataaggcgc agcggtcggg ctgaacgggg ggttcgtgca cacagcccag cttggagcga 4620  
acgacctaca ccgaactgag atacctacag cgtgagcatt gagaaagcgc cagccttccc 4680  
gaagggagaa aggcggacag gtatccggta agcggcaggg tcggaacagg agagcgcacg 4740  
agggagcttc cagggggaaa cgctggtat ctttatagtc ctgtcgggtt tcgccacctc 4800  
tgacttgagc gtcgattttt gtgatgctcg tcaggggggc ggagcctatg gaaaaacgcc 4860  
agcaacgcgg cctttttacg gttcctggcc ttttgctggc cttttgctca catgttcttt 4920  
cctgcgttat cccctgattc tgtggataac cgtattaccg cttttgagtg agctgatacc 4980  
gctcgcgcga gccgaacgac cgagcgcagc gagtcagtga gcgaggaagc ggaagagcgc 5040  
ctgatgcggg attttctcct tacgcatctg tgcgggtattt cacaccgcag accagccgcg 5100

taacctggca aaatcgggta cgggttgagta ataaatggat gccctgcgta agcgggtgtg 5160  
 ggccgacaat aaagtcttaa actgaacaaa atagatctaa actatgacaa taaagtctta 5220  
 aactagacag aatagttgta aactgaaatc agtccagtta tgctgtgaaa aagcatactg 5280  
 gacttttgtt atggctaaag caaactcttc attttctgaa gtgcaaattg cccgtcgtat 5340  
 taaagagggg cgtggccaag ggcattgtaa agactatatt cgcggcgttg tgacaattta 5400  
 ccgaacaact ccgcggcccg gaagccgata tcggcttgaa cgaattgta ggtggcggta 5460  
 cttgggtcga tatcaaagtg catcacttct tcccgtatgc ccaactttgt atagagagcc 5520  
 actgccggat cgtcacgta atctgcttgc acgtagatca cataagcacc aagcgcgttg 5580  
 gcctcatgct tgaggagatt gatgagcgcg gtggcaatgc cctgcctccg gtgctcgcg 5640  
 gagactgcga gatcatagat atagatctca ctacgcggct gctcaaactt gggcagaacg 5700  
 taagccgcga gagcgccaac aaccgcttct tggctgaagg cagcaagcgc gatgaatgtc 5760  
 ttactacgga gcaagttccc gaggtaatcg gaggccggct gatgttggga gtaggtggct 5820  
 acgtctccga actcacgacc gaaaagatca agagcagccc gcatggattt gacttggtca 5880  
 gggccgagcc tacatgtgcg aatgatgccc atacttgagc cacctaactt tgttttaggg 5940  
 cgactgcctt gctgcgtaac atcgttgctg ctgcgtaaca tcgttgctgc tccataacat 6000  
 caaacatcga cccacggcgt aacgcgcttg ctgcttgat gcccgaggca tagactgtac 6060  
 aaaaaaacag tcataacaag ccatgaaaac cgccactgcg ccgttaccac cgctgcgttc 6120  
 ggtcaagggt ctggaccagt tgcgtgagcg catacgctac ttgcattaca gtttacgaac 6180  
 cgaacaggct tatgtcaact gggttcgtgc ctcatccgt ttccacgggtg tgcgtcacc 6240  
 ggcaaccttg ggcagcagcg aagtcgagcg atttctgtcc tggctggcga acgagcgcga 6300  
 ggtttcgggt tccacgcata gtcaggcatt ggccggccttg ctgttcttct acggcaagg 6360  
 gctgtgcacg gatctgcctt ggcttcagga gatcggaaga cctcggccgt cgccggcgtt 6420  
 gccggtggtg ctgaccccg atgaagtgg tgcatactc ggttttctgg aaggcgagca 6480  
 tcgtttgttc gcccgaggat ctagctatag ttctagtggg ttgcta 6526

<210> 137

<211> 12464

<212> DNA

<213> pDEST9

<220>

<221> gene

<222> (232)..(355)

<223> attR1

<220>

<221> gene

<222> (605)..(1264)

<223> CmR

B1  
<220>

<221> gene

<222> (1384)..(1468)

<223> inactivated ccdA

<220>

<221> gene

<222> (1606)..(1911)

<223> ccdB

<220>

<221> gene

<222> (1952)..(2078)

<223> attR2

<220>

<221> gene

<222> (2532)..(2782)

<223> ori

<220>

<221> gene

<222> (3482)..(4282)

<223> ampR

<220>

<221> gene

<222> (5232)..(5365)

<223> SP6 promoter

<220>

<221> gene

<222> (5365)..(6965)

<223> nsP1:non-structural protein 1

<220>

<221> gene

<222> (6965)..(9265)

<223> nsP2:non-structural protein 2

<220>

<221> gene

<222> (9265)..(10865)

<223> nsP3:non-structural protein 3

<220>

<221> gene

<222> (161)..(10865)

<223> nsP4:non-structural protein 4

<400> 137

agcaagtggg tccggacagg cttggggggcc gaactggagg tggcactaac atctaggtat 60  
gaggtagagg gctgcaaaag tatcctcata gccatggcca ccttggcgag ggacattaag 120  
gcgtttaaga aattgagagg acctgttata cacctctacg gcggtcctag attggtgcgt 180  
taatacacag aattctgatt ggatcccggg ccgaagcgcg ctttcccatc acaagtttgt 240

acaaaaaagc tgaacgagaa acgtaaaatg atataaatat caatatatta aattagattt 300  
 tgcataaaaa acagactaca taatactgta aaacacaaca tatccagtca ctatggcggc 360  
 cgctaagttg gcagcatcac ccgacgcact ttgcgccgaa taaataacctg tgacggaaga 420  
 tcacttcgca gaataaataa atcctggtgt ccctgttgat accgggaagc cctgggccaa 480  
 cttttggcga aaatgagacg ttgatcgga cgtaagaggt tccaactttc accataatga 540  
 aataagatca ctaccgggcg ttttttttga gttatcgaga ttttcaggag ctaaggaagc 600  
 taaaatggag aaaaaaatca ctggatatac caccgttgat atatcccaat ggcacgtgaa 660  
 agaacatttt gaggcatttc agtcagttgc tcaatgtacc tataaccaga ccgttcagct 720  
 ggatattacg gcctttttta agaccgtaaa gaaaaataag cacaagtttt atccggcctt 780  
 tattcacatt cttgcccggc tgatgaatgc tcatccggaa ttccgtatgg caatgaaaga 840  
 cggtgagctg gtgatatggg atagtgttca cccttgttac accgttttcc atgagcaaac 900  
 tgaaacgttt tcatcgctct ggagtgaata ccacgacgat ttccggcagt ttctacacat 960  
 atattcgcaa gatgtggcgt gttacggtga aaacctggcc tatttcccta aagggtttat 1020  
 tgagaatatg tttttcgtct cagccaatcc ctgggtgagt ttcaccagtt ttgatttaaa 1080  
 cgtggccaat atggacaact tcttcgcccc cgttttcacc atgggcaaatt attatacgca 1140  
 aggcgacaag gtgctgatgc cgctggcgat tcagggtcat catgccgtct gtgatggctt 1200  
 ccatgtcggc agaatgctta atgaattaca acagtactgc gatgagtggc agggcggggc 1260  
 gtaaagatct ggatccggct tactaaaagc cagataacag tatgcggtatt tgcgcgtga 1320  
 tttttgcggt ataagaatat atactgatat gtatacccca agtatgtcaa aaagaggtgt 1380  
 gctatgaagc agcgtattac agtgacagtt gacagcgaca gctatcagtt gctcaaggca 1440  
 tatatgatgt caatatctcc ggtctggtta gcacaacat gcagaatgaa gcccgctctc 1500  
 tgcgtgccga acgctggaaa gcggaaaatc aggaagggat ggctgaggtc gcccggttta 1560  
 ttgaaatgaa cggctctttt gctgacgaga acagggactg gtgaaatgca gtttaagggt 1620  
 tacacctata aaagagagag ccgttatcgt ctgtttgtgg atgtacagag tgatattatt 1680  
 gacacgcccc ggcgacggat ggtgatcccc ctggccagtg cacgtctgct gtcagataaa 1740  
 gtctccccgtg aactttaccc ggtggtgcat atcggggatg aaagctggcg catgatgacc 1800  
 accgatatgg ccagtgtgcc ggtctccgtt atcggggaag aagtggctga tctcagccac 1860  
 cgcgaaaatg acatcaaaaa cgccattaac ctgatgttct ggggaatata aatgtcaggc 1920  
 tcccttatac acagccagtc tgcaggctga ccatagtgac tggatatgtt gtgttttaca 1980  
 gtattatgta gtctgttttt tatgcaaaag tgctaattta atatattgat atttatatca 2040  
 ttttacgttt ctcggttcagc tttcttgtac aaagtgggtga tgggaactcg agttcactag 2100

B1

tcgatcccgcc ggccgctttc gaacctagggc aagcatgcgg gccagtgagg taattaattg 2160  
aattacatcc ctacgcaaac gttttacggc cgccgggtggc gcccgcgccc ggccggcccg 2220  
ccttgcccggt tgcaggccac tccgggtggct cccgtcgtcc ccgacttcca ggcccagcag 2280  
atgcagcaac tcatcagcgc cgtaaattgcy ctgacaatga gacagaacgc aattgctcct 2340  
gctaggagct taattcgacg aataattgga tttttatttt attttgcaat tggtttttaa 2400  
tatttccaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 2460  
aaaaaaaaaa aaaaaaacta gaaatcgcca tttctagtct gcattaatga atcggccaac 2520  
gcgcgggggag aggcgggtttg cgtattgggc gctcttccgc ttcttcgctc actgactcgc 2580  
tgcgctcgggt cgttcggctg cggcgagcgg tatcagctca ctcaaaggcg gtaatacgggt 2640  
tatccacaga atcaggggat aacgcaggaa agaacatgtg agcaaaaggc cagcaaaagg 2700  
ccaggaaccg taaaaaggcc gcgttgctgg cgtttttcca taggtctccgc cccctgacg 2760  
agcatcacia aaatcgacgc tcaagtcaga ggtggcgaaa cccgacagga ctataaagat 2820  
accaggcggt tccccctgga agctccctcg tgcgctctcc tgttccgacc ctgccgtta 2880  
ccggatacct gtccgccttt ctcccttcgg gaagcggtggc gctttctcaa tgctcgcgct 2940  
gtaggtatct cagttcgggtg taggtcgttc gctccaagct gggctgtgtg cacgaacccc 3000  
cgttcagcc cgaccgctgc gccttatccg gtaactatcg tcttgagtc aaccggtaa 3060  
gacacgactt atcgccactg gcagcagcca ctggtaacag gattagcaga gcgaggtatg 3120  
taggcgggtg tacagagttc ttgaagtggg ggctaacta cggctacact agaaggacag 3180  
tatttggtat ctgcgctctg ctgaagccag ttaccttcgg aaaaagagtt ggtagctctt 3240  
gatccggcaa acaaaccacc gctggtagcg gtgggttttt tgtttgcaag cagcagatta 3300  
cgcgagaaaa aaaaggatct caagaagatc ctttgatctt ttctacgggg tctgacgctc 3360  
agtggaaacga aaactcacgt taagggattt tggatcatgag attatcaaaa aggatcttca 3420  
cctagatcct tttaaattaa aaatgaagtt ttaaataaat ctaaagtata tatgagtaaa 3480  
cttgggtctga cagttacca tgcctaatca gtgaggcacc tatctcagcg atctgtctat 3540  
ttcgttcatc catagttgcc tgactccccg tcgtgtagat aactacgata cgggagggct 3600  
taccatctgg cccagtgct gcaatgatac cgcgagaccc acgctcaccg gctccagatt 3660  
tatcagcaat aaaccagcca gccggaaggg ccgagcgcag aagtggctct gcaactttat 3720  
ccgcctccat ccagtctatt aattgttgcc ggggaagctag agtaagtagt tcgccagtta 3780  
atagtttgcy caacgttggt gccattgcta caggcatcgt ggtgtcacgc tcgtcgtttg 3840  
gtatggcttc attcagctcc ggttcccaac gatcaaggcg agttacatga tccccatgt 3900  
tgtgcaaaaa agcgggttagc tccttcgggc ctccgacgt tgtcagaagt aagttggccg 3960

B1

cagtgttata actcatggtt atggcagcac tgcataattc tcttactgtc atgccatccg 4020  
 taagatgctt ttctgtgact ggtgagtact caaccaagtc attctgagaa tagtgtatgc 4080  
 ggcgaccgag ttgctcttgc ccggcgctcaa tacgggataa taccgcgcca catagcagaa 4140  
 ctttaaaagt gctcatcatt ggaaaacggt cttcggggcg aaaactctca aggatcttac 4200  
 cgctgttgag atccagttcg atgtaaccca ctctgtcacc caactgatct tcagcatctt 4260  
 ttactttcac cagegtttct ggggtgagcaa aaacaggaag gcaaaatgcc gcaaaaaagg 4320  
 gaataagggc gacacggaaa tgttgaatac tcatactctt cctttttcaa tattattgaa 4380  
 gcatttatca gggttattgt ctcatgagcg gatacatatt tgaatgtatt tagaaaaata 4440  
 aacaaatagg ggttccgcgc acatttcccc gaaaagtgcc acctgacgtc taagaaacca 4500  
 ttattatcat gacattaacc tataaaaaata ggcgtatcac gaggcccttt cgtctcgcgc 4560  
 gtttcgggtga tgacggtgaa aacctctgac acatgcagct cccggagacg gtcacagctt 4620  
 ctgtctaagc ggatgccggg agcagacaag cccgtcaggg cgctcagcg ggtgttggcg 4680  
 ggtgtcgggg ctggcttaac tatgcggcat cagagcagat tgtactgaga gtgcaccata 4740  
 tcgacgctct cccttatgcg actcctgcat taggaagcag ccagtacta ggttgaggcc 4800  
 gttgagcacc gccgccgcaa ggaatggtgc atgcaaggag atggcgccca acagtcccc 4860  
 ggccacgggg cctgccacca taccacgccc gaaacaagcg ctcatgagcc cgaagtggcg 4920  
 agcccgatct tccccatcg tgatgtcggc gatataggcg ccagcaaccg cacctgtggc 4980  
 gccggtgatg ccggccacga tgcgtccggc gtagaggatc tggctagcga tgaccctgct 5040  
 gattggttcg ctgaccattt ccggggtgcg gaacggcggt accagaaact cagaaggttc 5100  
 gtccaaccaa accgactctg acggcagttt acgagagaga tgatagggtc tgcttcagta 5160  
 agccagatgc tacacaatta ggcttgatca tattgtcggt agaacgcggc tacaattaat 5220  
 acataacctt atgtatcata cacatacgat ttaggtgaca ctatagatgg cggatgtgtg 5280  
 acatacacga cgccaaaaga ttttgttcca gtcctgccca cctccgctac gcgagagatt 5340  
 aaccacccac gatggccgcc aaagtgcag ttgatattga ggctgacagc ccattcatca 5400  
 agtcttttga gaaggcattt ccgtcgttcg aggtggagtc attgcaggtc acaccaaag 5460  
 accatgcaaa tgccagagca ttttcgcacc tggctaccaa attgatcgag caggagactg 5520  
 acaaagacac actcatcttg gatatcgga gtgcgccttc caggagaatg atgtctacgc 5580  
 acaaatacca ctgcgtatgc cctatgcgca gcgcagaaga ccccgaaagg ctcatagct 5640  
 acgcaaagaa actggcagcg gcctccggga aggtgctgga tagagagatc gcaggaaaaa 5700  
 tcaccgacct gcagaccgtc atggctacgc cagacgctga atctcctacc ttttgcctgc 5760  
 atacagacgt cacgtgtcgt acggcagccg aagtggccgt ataccaggac gtgtatgctg 5820

B I



tacatgcacc aacatcgctg taccatcagg cgatgaaagg tgtcagaacg gcgtattgga 5880  
ttgggtttga caccaccccg tttatgtttg acgcgctagc aggcgcgtat ccaacctacg 5940  
ccacaaactg ggccgacgag caggtgttac aggccaggaa cataggactg tgtgcagcat 6000  
ccttgactga gggaagactc ggcaaactgt ccattctccg caagaagcaa ttgaaacctt 6060  
gcgacacagt catgttctcg gtaggatcta cattgtacac tgagagcaga aagctactga 6120  
ggagctggca cttaccctcc gtattccacc tgaaaggtaa acaatccttt acctgtaggt 6180  
gcgataccat cgtatcatgt gaagggtacg tagttaagaa aatcactatg tgccccggcc 6240  
tgtacggtaa aacggtaggg tacgccgtga cgtatcacgc ggagggattc ctagtgtgca 6300  
agaccacaga cactgtcaaa ggagaaagag tctcattccc tgtatgcacc tacgtccctt 6360  
caaccatctg tgatcaaatg actggcatac tagcgaccga cgtcacaccg gaggacgcac 6420  
agaagttgtt agtgggattg aatcagagga tagttgtgaa cggaagaaca cagcgaaaca 6480  
ctaacacgat gaagaactat ctgcttccga ttgtggccgt cgcatttagc aagtgggcca 6540  
gggaatacaa ggcagacctt gatgatgaaa aacctctggg tgtccgagag aggtcactta 6600  
cttgctgctg cttgtgggca tttaaaacga ggaagatgca caccatgtac aagaaaccag 6660  
acaccagac aatagtgaag gtgccttcag agtttaactc gttcgtcatc ccgagcctat 6720  
gggtctacagg cctcgcaatc ccagtcagat caccgattaa gatgcttttg gccagaaga 6780  
ccaagcgaga gttaatacct gttctcgacg cgtcgtcagc cagggatgct gaacaagagg 6840  
agaaggagag gttggaggcc gagctgacta gagaagcctt accaccctc gtccccatcg 6900  
cgccggcgga gacgggagtc gtcgacgtcg acgttgaaga actagagtat caccgaggtg 6960  
caggggtcgt ggaaacacct cgcagcgcgt tgaaagtcac cgcacagccg aacgacgtac 7020  
tactaggaaa ttacgtagtt ctgtccccgc agaccgtgct caagagctcc aagttggccc 7080  
ccgtgcaccc tctagcagag caggtgaaaa taataacaca taacgggagg gccggcggtt 7140  
accaggtcga cggatatgac ggcagggtcc tactaccatg tggatcggcc attccggtec 7200  
ctgagtttca ggctttgagc gagagcgcca ctatggtgta caacgaaagg gagttcgtca 7260  
  
acaggaaact ataccatatt gccgttcacg gaccctcgct gaacaccgac gaggagaact 7320  
acgagaaagt cagagctgaa agaactgacg ccgagtacgt gttcgacgta gataaaaaat 7380  
gctgcgtcaa gagagaggaa gcgtcggggt ttggtgttggg gggagagcta accaaccccc 7440  
cgttccatga attcgcctac gaagggtgta agatcaggcc gtcggcacca tataagacta 7500  
cagtagtagg agtctttggg gttccgggat caggcaagtc tgctattatt aagagcctcg 7560  
tgaccaaaaca cgatctggtc accagcggca agaaggagaa ctgccaggaa atagttaacg 7620  
acgtgaagaa gcaccgcggg aaggggacaa gtagggaaaa cagtgactcc atcctgctaa 7680

B1

acgggtgtcg tegtgcctg gacatcctat atgtggacga ggctttcgct tgccattccg 7740  
gtactctgct ggcctaatt gctcttgta aacctcggag caaagtggg tttatgcggag 7800  
acccaagca atgcggattc ttcaatatga tgcagcttaa ggtgaacttc aaccacaaca 7860  
tctgactga agtatgtcat aaaagtatat ccagacgttg cacgcgtcca gtcacggcca 7920  
tcgtgtctac gttgactac ggaggcaaga tgcgcacgac caaccctgc aacaaacca 7980  
taatcataga caccacagga cagaccaagc ccaagccagg agacatcgtg ttaacatgct 8040  
tccgaggctg ggcaaagcag ctgcagttgg actaccgtgg acacgaagtc atgacagcag 8100  
cagcatctca gggcctcacc cgcaaagggg tatacgccgt aaggcagaag gtgaatgaaa 8160  
atcccttgta tgccctgctg tcggagcacg tgaatgtact gctgacgcgc actgaggata 8220  
ggctgggtgtg gaaaacgctg gccggcgatc cctggattaa ggtcctatca aacattccac 8280  
agggtaactt tacggccaca ttggaagaat ggcaagaaga acacgacaaa ataataaggg 8340  
tgattgaagg accggtgctg cctgtggacg cgttccagaa caaagcgaac gtgtgttggg 8400  
cgaaaagcct ggtgcctgtc ctggacactg ccggaatcag attgacagca gaggagtggg 8460  
gcaccataat tacagcattt aaggaggaca gagcttactc tccagtgggtg gccttgaatg 8520  
aaatttgac caagtactat ggagttgacc tggacagtgg cctgttttct gccccgaagg 8580  
tgtccctgta ttacgagaac aaccactggg ataacagacc tgggtggaagg atgtatggat 8640  
tcaatgccgc aacagctgcc aggctggaag ctagacatac cttcctgaag gggcagtggc 8700  
atacgggcaa gcaggcagtt atcgcagaaa gaaaaatcca accgctttct gtgctggaca 8760  
atgtaattcc tatcaaccgc aggtgcgcgc acgccctggg ggctgagtac aagacgggta 8820  
aaggcagtag ggttgagtgg ctggtcaata aagtaagagg gtaccacgtc ctgctgggta 8880  
gtgagtacaa cctggctttg cctcgacgca gggcacttg gttgtcaccg ctgaatgtca 8940  
caggcgccga taggtgctac gacctagtt taggactgcc ggctgacgcc ggcaggttcg 9000  
acttggctct tgtgaacatt cacacggaat tcagaatcca ccactaccag cagtgtgtcg 9060  
accacgccat gaagctgcag atgcttgggg gagatgcgct acgactgcta aaaccggcg 9120  
gcatcttgat gagagcttac ggatacgccg ataaaatcag cgaagccgtt gtttctctct 9180  
taagcagaaa gttctcgtct gcaagagtgt tgcgcccggg ttgtgtcacc agcaatacag 9240  
aagtgttctt gctgttctcc aactttgaca acggaaagag accctctacg ctacaccaga 9300  
tgaataccaa gctgagtgcc gtgtatgccg gagaagccat gcacacggcc ggggtgtgcac 9360  
catcctacag agttaagaga gcagacatag ccacgtgcac agaagcggct gtgggtaacg 9420  
cagctaacgc ccgtggaact gtaggggatg gcgtatgcag ggccgtggcg aagaaatggc 9480  
cgtcagcctt taaggagca gcaacaccag tgggcacaaat taaaacagtc atgtgcggct 9540

B1

cgtaacccgt catccacgct gtagcgcta atttctctgc cagcactgaa gcggaagggg 9600  
accgcgaatt ggccgctgtc taccgggcag tggccgccga agtaaacaga ctgtcactga 9660  
gcagcgtagc catcccgtcg ctgtccacag gagtggtcag cggcggaaga gataggctgc 9720  
agcaatccct caaccatcta ttcacagcaa\* tggacgccac ggacgctgac gtgaccatct 9780  
actgcagaga caaaagttgg gagaagaaaa tccaggaagc cattgacatg aggacggctg 9840  
tggagttgct caatgatgac gtggagctga ccacagactt ggtgagagtg caccgggaca 9900  
gcagcctggt gggtcgtaag ggctacagta ccactgacgg gtcgctgtac tcgtactttg 9960  
aaggtacgaa attcaaccag gctgctattg atatggcaga gatactgacg ttgtggccca 10020  
gactgcaaga ggcaaacgaa cagatatgcc tatacgcgct gggcgaaaca atggacaaca 10080  
tcagatccaa atgtccggtg aacgattccg attcatcaac acctcccagg acagtgcctt 10140  
gcctgtgccg ctacgcaatg acagcagaac ggatcgcccg ccttaggtca caccaagtta 10200  
aaagcatggt ggtttgcctc tcttttcccc tcccgaata ccatgtagat ggggtgcaga 10260  
aggtaaagtg cgagaaggtt ctctgttctg acccgacggt accttcagtg gttagtccgc 10320  
ggaagtatgc cgcactctacg acggaccact cagatcggtc gttacgaggg tttgacttgg 10380  
actggaccac cgactcgtct tccactgcca gcgataccat gtcgctaccc agtttgcagt 10440  
cgtgtgacat cgactcgatc tacgagccaa tggctcccat agtagtgacg gctgacgtac 10500  
acctgaacc cgcaggcatc gcggacctgg cggcagatgt gcacctgaa cccgcagacc 10560  
atgtggacct ggagaacccg attcctccac cgcgcccga gagagctgca taccttgcct 10620  
cccgcgcggc ggagcgaccg gtgccggcgc cgagaaagcc gacgcctgcc ccaaggactg 10680  
cgtttaggaa caagctgcct ttgacgttct gcgactttga cgagcacgag gtcgatgcgt 10740  
tggcctccgg gattactttc ggagacttct acgacgtcct gcgactaggc cgcgcggtg 10800  
catatatatt ctctcggac actggcagcg gacatttaca acaaaaatcc gttaggcagc 10860  
acaatctcca gtgcgcacaa ctggatgcgg tccaggagga gaaaatgtac ccgcaaaat 10920  
tggatactga gagggagaag ctgttgcctg tgaaaatgca gatgcacca tcggaggcta 10980  
ataagagtgc ataccagtct cgcaaagtgg agaacatgaa agccacggtg gtggacaggc 11040  
tcacatcggg ggccagattg tacacgggag cggacgtagg ccgcatacca acatacgcg 11100  
ttcgggtaccc ccgccccgtg tactccccta ccgtgatcga aagatttctc agccccgatg 11160  
tagcaatcgc agcgtgcaac gaatacctat ccagaaatta cccaacagtg gcgtcgtacc 11220  
agataacaga tgaatacgac gcatacttgg acatgggttg cgggtcggat agttgcttgg 11280  
acagagcgac attctgcccg gcgaagctcc ggtgctaccc gaaacatcat gcgtaccacc 11340  
agccgactgt acgcagtgcc gtcccgtcac cctttcagaa cactactacg aacgtgctag 11400

B1

cggctgccac caagagaaac tgcaacgtca cgcaaattgcg agaactaccc accatggact 11460  
 cggcagtgtt caacgtggag tgcttcaagc gctatgcctg ctccggagaa tattgggaag 11520  
 aatatgctaa acaacctatc cggataacca ctgagaacat cactacctat gtgaccaaatt 11580  
 tgaaaggccc gaaagctgct gccttggtcg ctaagaccca caacttggtt ccgctgcagg 11640  
 aggttcccat ggacagattc acggctcgaca tgaaacgaga tgtcaaagtc actccagga 11700  
 cgaaacacac agaggaaaga cccaaagtcc aggttaattca agcagcggag ccattggcga 11760  
 ccgcttacct gtgcggcatc cacaggaat tagtaaggag actaaatgct gtgttacgcc 11820  
 ctaacgtgca cacattgttt gatatgtcg ccgaagactt tgacgcgatc atcgctctc 11880  
 acttccaccc aggagaccg gttctagaga cggacattgc atcattcgac aaaagccagg 11940  
 acgactcctt ggctcttaca ggtttaatga tctcgaaga tctaggggtg gatcagtacc 12000  
 tgctggactt gatcgaggca gcctttgggg aaatatccag ctgtcaccta ccaactggca 12060  
 cgcgcttcaa gttcggagct atgatgaaat cgggcatggt tctgactttg tttattaaca 12120  
 ctgttttgaa catcaccata gcaagcaggg tactggagca gagactcact gactccgct 12180  
 gtgcggcctt catcggcgac gacaacatcg ttcacggagt gatctccgac aagctgatgg 12240  
 cggagagggtg cgcgtcgtgg gtcaacatgg aggtgaagat cattgacgct gtcatgggcg 12300  
 aaaaaccccc atatttttgt gggggattca tagtttttga cagcgtcaca cagaccgct 12360  
 gccgtgtttc agaccactt aagcgcctgt tcaagttggg taagccgcta acagctgaag 12420  
 acaagcagga cgaagacagg cgacgagcac tgagtgacga gggt 12464

<210> 138

<211> 6708

<212> DNA

<213> pDEST10

<220>

<221> gene

<222> (23) .. (152)

<223> Ppolh

<220>

<221> gene

<222> (337) .. (461)

<223> attR1

<220>

<221> gene

<222> (711) .. (1370)

<223> CmR

<220>

<221> gene

<222> (1490) .. (1574)

<223> inactivated ccdA

<220>

<221> gene

<222> (1712) .. (2017)

<223> ccdB

<220>

<221> gene

<222> (2058) .. (2182)

<223> attR2

<220>

<221> gene

<222> (3394) .. (4369)

<223> ampR

<220>

<221> gene

<222> (4510) .. (5164)

<223> ori

B1

<220>

<221> gene

<222> (62) .. (5658)

<223> genR

<400> 138

ccccggatga agtgggttcgc atcctcgggtt ttctggaagg cgagcatcgt ttgttcgccc 60  
aggactctag ctatagttct agtgggttggc tacgtatact ccggaatatt aatagatcat 120  
ggagataatt aaaatgataa ccatctcgca aataaataag tattttactg ttttcgtaac 180  
agtgttgtaa taaaaaaacc tataaatatt ccggattatt cataccgtcc caccatcggg 240  
cgcggtatctc ggtccgaaac catgtcgtac taccatcacc atcaccatca cgattacgat 300  
atcccaacga ccgaaaacct gtattttcag ggcatcacaa gtttgtacaa aaaagctgaa 360  
cgagaaacgt aaaatgatat aaatatcaat atattaaatt agattttgca taaaaaacag 420  
actacataat actgtaaaac acaacatata cagtcactat ggcgggccgct aagttggcag 480  
catcacccga cgcactttgc gccgaataaa tacctgtgac ggaagatcac ttcgcagaat 540  
aaataaatcc tgggtgtccct gttgataccg ggaagccctg ggccaacttt tggcgaaaat 600  
gagacgttga tcggcacgta agagggtcca actttcacca taatgaaata agatcactac 660  
cgggcgatatt ttttgagtta tcgagatttt caggagctaa ggaagctaaa atggagaaaa 720  
aatcactgg atataccacc gttgatatat cccaatggca tcgtaaagaa cattttgagg 780  
catttcagtc agttgctcaa tgtacctata accagaccgt tcagctggat attacggcct 840  
ttttaagac cgtaaagaaa aataagcaca agttttatcc ggcctttatt cacattcttg 900  
cccgctgat gaatgctcat ccggaattcc gtatggcaat gaaagacggg gagctggtga 960  
tatgggatag tgttcaccct tgttacaccg ttttccatga gcaaactgaa acgttttcat 1020  
cgctctggag tgaataccac gacgatttcc ggcagtttct acacatatat tcgcaagatg 1080  
tggcgtgtta cggtgaaaac ctggcctatt tccctaaagg gtttattgag aatatgtttt 1140  
tcgtctcagc caatccctgg gtgagtttca ccagttttga tttaaactg gccaatatgg 1200  
acaacttctt cgccccggtt ttcaccatgg gcaaataatta tacgcaaggc gacaagggtgc 1260  
tgatgccgct ggcgattcag gttcatcatg ccgtctgtga tggcttccat gtcggcagaa 1320  
tgcttaatga attacaacag tactgcgatg agtggcaggg cggggcgtaa acgcgtggat 1380  
ccggcttact aaaagccaga taacagtatg cgtatttgcg cgctgatttt tgcggtataa 1440  
gaatatatac tgatatgtat acccgaagta tgtcaaaaag aggtgtgcta tgaagcagcg 1500

tattacagtg acagttgaca ggcacagcta tcagttgctc aaggcatata tgatgtcaat 1560  
atctccgggtc tggttaagcac aaccatgcag aatgaagccc gtcgtctgcg tgccgaacgc 1620  
tggaagcgg aaaatcagga agggatggct gaggtcgccc ggttttattga aatgaacggc 1680  
tcttttgctg acgagaacag ggactgggtga aatgcagttt aagggtttaca cctataaaag 1740  
agagagccgt tatcgtctgt ttgtggatgt acagagtgtg attattgaca cgcccgggcg 1800  
acggatgggtg atccccctgg ccagtgcacg tctgctgtca gataaagtct cccgtgaact 1860  
ttaccgggtg gtgcatatcg gggatgaaag ctggcgcatg atgaccaccg atatggccag 1920  
tgtgccgggtc tccgttatcg gggaagaagt ggctgatctc agccaccgcg aaaatgacat 1980  
caaaaacgcc attaacctga tgttctgggg aatataaatg tcaggctccc ttatacacag 2040  
ccagtctgca ggtcgaccat agtgactgga tatgttgtgt ttacagtat tatgtagtct 2100  
gttttttatg caaaatctaa tttaatatat tgatatattat atcattttac gtttctcggt 2160  
cagctttctt gtacaaagtg gtgatgccat ggatccggaa ttcaaaggcc tacgtcgacg 2220  
agctcaacta gtgcggccgc tttcgaatct agagcctgca gtctcgaggc atgcggtacc 2280  
aagcttgctg agaagtacta gaggatcata atcagccata ccacatttgt agaggtttta 2340  
cttgctttaa aaaacctccc acacctcccc ctgaacctga aacataaaat gaatgcaatt 2400  
gttggttgta acttgtttat tgcagcttat aatggttaca aataaagcaa tagcatcaca 2460  
aatttcacaa ataaagcatt tttttcactg cattctagtt gtggtttgct caaactcatc 2520  
aatgtatctt atcatgtctg gatctgatca ctgcttgagc ctaggagatc cgaaccagat 2580  
aagtgaaatc tagttccaaa ctattttgtc atttttaatt ttcgattag cttacgacgc 2640  
tacaccagt tccatctat tttgtcactc ttcctaaaat aatcctaaa aactccattt 2700  
ccaccctcc cagttccaa ctattttgtc cgccacagc ggggcatttt tcttctgtt 2760  
atgtttttaa tcaaacatcc tgccaactcc atgtgacaaa ccgtcatctt cggctacttt 2820  
ttctctgtca cagaatgaaa atttttctgt catctcttcg ttattaatgt ttgtaattga 2880  
ctgaatatca acgtttattt gcagcctgaa tggcgaatgg gacgcgcct gtagcggcgc 2940  
attaagcgcg gcgggtgtgg tggttacgcg cagcgtgacc gctacacttg ccagcgcct 3000  
agcgcgcgt ccttctgctt tcttcccttc ctttctcgcc acgttcgccg gctttcccg 3060  
tcaagctcta aatcgggggc tcccttagg gttccgattt agtgctttac ggcacctga 3120  
ccccaaaaa cttgattagg gtgatgggtc acgtagtggg ccacgcct gatagacggt 3180  
ttttcgccct ttgacgttg agtccacgtt ctttaaatagt ggactcttgt tccaaactgg 3240  
aacaacactc aaccctatct cggcttatcc ttttgattta taagggtttt tgccgatttc 3300  
ggcctattgg ttaaaaaatg agctgattta acaaaaattt aacgcgaatt ttaacaaaat 3360

B1

attaacgttt acaatttcag gtggcacttt tcggggaaat gtgcgcggaa cccctatttg 3420  
tttatttttc taaatacatt caaatatgta tccgctcatg agacaataac cctgataaat 3480  
gcttcaataa tattgaaaaa ggaagagtat gagtattcaa catttccgtg tcgcccttat 3540  
tccctttttt ggggcatttt gccttctgtt ttttgctcac ccagaaacgc tggtgaaagt 3600  
aaaagatgct gaagatcagt tgggtgcacg agtgggttac atcgaactgg atctcaacag 3660  
cggtaagatc cttgagagtt ttcccccga agaactgttt ccaatgatga gcacttttaa 3720  
agttctgcta tgtggcgagg tattatcccg tattgacgcc gggcaagagc aactcggtcg 3780  
ccgcatacac tattctcaga atgacttggg tgagtactca ccagtcacag aaaagcatct 3840  
tacggatggc atgacagtaa gagaattatg cagtgtctgc ataaccatga gtgataacac 3900  
tgccggcaac ttactttctga caacgatcgg aggaccgaag gagctaaccg cttttttgca 3960  
caacatgggg gatcatgtaa ctgccttga tcgttgggaa ccggagctga atgaagccat 4020  
accaaagcag gagcgtgaca ccacgatgcc tgtagcaatg gcaacaacgt tgcgcaaact 4080  
attaactggc gaactactta ctctagcttc ccggcaacaa ttaatagact ggatggaggc 4140  
ggataaagtt gcaggaccac ttctgcgtc gcccttccg gctggctggg ttattgtctga 4200  
taaactctga gccggtgagc gtgggtctcg cggatatcatt gcagcactgg ggccagatgg 4260  
taagccctcc cgtatcgtag ttatctacac gacggggagt caggcaacta tggatgaacg 4320  
aaatagacag atcgctgaga taggtgcctc actgattaag catttgtaac tgtcagacca 4380  
agtttactca tatatacttt agattgattt aaaacttcat ttttaattta aaaggatcta 4440  
ggtgaagatc ctttttgata atctcatgac caaaatccct taacgtgagt ttctgttcca 4500  
ctgagcgtca gaccccgtag aaaagatcaa aggatcttct tgagatcctt tttttctgcg 4560  
cgtaatctgc tgcttgcaaa caaaaaaac accgctacca gcggtggttt gtttgccgga 4620  
tcaagagcta ccaactcttt ttccgaaggt aactggcttc agcagagcgc agataccaaa 4680  
tactgtcctt ctagtgtagc cgtagttagg ccaccacttc aagaactctg tagcaccgcc 4740  
tacatacctc gctctgctaa tctgttacc agtggctgct gccagtggcg ataagtcgtg 4800  
tcttaccggg ttggactcaa gacgatagtt accggataag gcgcagcggc cgggctgaac 4860  
gggggggttcg tgcacacagc ccagcttggg gcgaacgacc tacaccgaac tgagatacct 4920  
acagcgtgag cattgagaaa gcgccacgtt tcccgaaggg agaaaggcgg acaggatatcc 4980  
ggtaagcggc agggctcgga caggagagcg caccagggag cttccagggg gaaacgcctg 5040  
gtatctttat agtcctgtcg ggtttcgcca cctctgactt gagcgtcgat ttttgtgatg 5100  
ctcgtcaggg gggcgagcc tatggaaaaa cgccagcaac gcggcctttt tacggttcct 5160  
ggccttttgc tggcctttt ctcacatggt ctttctctgc ttatccctg attctgtgga 5220

B1



taaccgtatt accgcctttg agtgagctga taccgctcgc cgcagccgaa cgaccgagcg 5280  
cagcgagtca gtgagcgagg aagcgggaaga ggcctgatg cggtattttc tccttacgca 5340  
tctgtgcggg atttcacacc gcagaccagc cgcgtaacct ggcaaaatcg gttacggttg 5400  
agtaataaat ggatgccctg cgtaagcggg tgtgggcgga caataaagtc ttaaaactgaa 5460  
caaaatagat ctaaactatg acaataaagt cttaaactag acagaatagt tgtaaactga 5520  
aatcagtgca gttatgctgt gaaaaagcat actggacttt tggtatggct aaagcaaact 5580  
cttcattttc tgaagtcaa attgcccgtc gtattaaaga ggggcgtggc caagggcatg 5640  
gtaaagacta tattcgcggc gttgtgacaa ttaccgaac aactccgcgg ccgggaagcc 5700  
gatctcggct tgaacgaatt gttaggtggc ggtacttggg tcgatatcaa agtgcacac 5760  
ttcttcccgat atgcccact ttgtatagag agccactgcg ggatcgtcac cgtaatctgc 5820  
ttgcacgtag atcacataag caccaagcgc gttggcctca tgcttgagga gattgatgag 5880  
cgcggtggca atgccctgcc tccggtgctc gccggagact gcgagatcat agatatagat 5940  
ctcactacgc ggctgctcaa acctgggcag aacgtaagcc gcgagagcgc caacaaccgc 6000  
ttcttggtcg aaggcagcaa gcgcgatgaa tgtcttacta cggagcaagt tcccgaggta 6060  
atcggagtcc ggctgatgtt gggagtaggt ggctacgtct ccgaactcac gaccgaaaag 6120  
atcaagagca gcccgcatgg atttgacttg gtcagggccg agcctacatg tgcgatgat 6180  
gcccatactt gagccaccta actttgtttt agggcgactg ccctgctgcg taacatcggt 6240  
gctgctgctt aacatcggtt ctgctccata acatcaaaaa tcgaccacg gcgtaacgcg 6300  
cttgctgctt ggatgcccg ggcatagact gtacaaaaaa acagtcataa caagccatga 6360  
aaaccgccac tgcgccgta ccaccgctgc gttcgggtcaa ggttctggac cagttgcgtg 6420  
agcgcatagc ctacttgcat tacagtttac gaaccgaaca ggcttatgtc aactgggttc 6480  
gtgccttcat ccgtttccac ggtgtgcgtc acccggcaac cttgggcagc agcgaagtcg 6540  
aggcatttct gtcctggctg gcgaacgagc gcaaggtttc ggtctccacg catcgtcagg 6600  
cattggcggc cttgctgttc ttctacggca aggtgctgtg cacggatctg ccctggcttc 6660  
aggagatcgg aagacctcgg ccgtcgcggc gcttgccggg ggtgctga 6708

<210> 139

<211> 7026

<212> DNA

<213> pDEST11

<220>

<221> gene  
<222> (4)..(479)  
<223> Tetp ((tet operator) 7 and min hCMV promoter)

<220>

<221> gene  
<222> (514)..(638)  
<223> attR1

B1  
<220>

<221> gene  
<222> (888)..(1547)  
<223> CmR

<220>

<221> gene  
<222> (1667)..(1751)  
<223> inactivated ccdA

<220>

<221> gene  
<222> (1889)..(2194)  
<223> ccdB

<220>

<221> gene  
<222> (2235)..(2359)  
<223> attR2

<220>

<221> gene

<222> (2402)..(4132)

<223> polyA

<220>

<221> gene

<222> (4347)..(4803)

<223> f1 ori

<220>

<221> gene

<222> (4940)..(5797)

<223> ampR

<400> 139

cgagtttacc actccctatc agtgatagag aaaagtgaaa gtcgagttta ccactcccta 60  
tcagtgatag agaaaagtga aagtcgagtt taccactccc tatcagtgat agagaaaagt 120  
gaaagtcgag ttaccactc cctatcagtg atagagaaaa gtgaaagtcg agtttaccac 180  
tcctatcag tgatagagaa aagtgaagtc cgagtttacc actccctatc agtgatagag 240  
aaaagtgaaa gtcgagttta ccactcccta tcagtgatag agaaaagtga aagtcgagct 300  
cggtagccgg gtcgagtagg cgtgtacggg gggaggccta tataagcaga gctcgtttag 360  
tgaaccgtca gatcgccctg agacgccatc cacgctgttt tgacctccat agaagacacc 420  
gggaccgatc cagcctccgc ggccccgaat tcgagctcgg taccggggga tcctctagag 480  
tcgaggtcga cggtagatc aagcttgata tcaacaagtt tgtacaaaaa agctgaacga 540  
gaaacgtaaa atgatataaa tatcaatata ttaaattaga ttttgcataa aaaacagact 600  
acataatact gtaaaacaca acatatccag tcactatggc ggccgctaag ttggcagcat 660  
caccgacgc actttgcgcc gaataaatac ctgtgacgga agatcacttc gcagaataaa 720  
taaactcctg tgccctgtt gataccggga agccctgggc caacttttgg cgaaaatgag 780  
acgttgatcg gcacgtaaga ggttccaact ttcaccataa tgaaataaga tcactaccgg 840  
gcgtatTTTT tgagttatcg agattttcag gagctaagga agctaaaatg gagaaaaaaa 900  
tcactggata taccaccgtt gatatatccc aatggcatcg taaagaacat tttgaggcat 960  
ttcagtcagt tgctcaatgt acctataacc agaccgttca gctggatatt acggcctttt 1020  
taaagaccgt aaagaaaaat aagcacaagt tttatccggc ctttattcac attcttgccc 1080

gcctgatgaa tgctcatccg gaattccgta tggcaatgaa agacgggtgag ctgggtgatat 1140  
gggatagtggt tcacccttgt tacaccgttt tccatgagca aactgaaacg ttttcatcgc 1200  
tctggagtga ataccacgac gatttccggc agtttctaca catatattcg caagatgtgg 1260  
cgtgttacgg tgaaaacctg gcctatttcc cttaaagggtt tattgagaat atgtttttcg 1320  
tctcagccaa tccttgggtg agtttcacca gttttgattt aaacgtggcc aatatggaca 1380  
acttcttcgc ccccgttttc accatgggca aatattatac gcaaggcgac aagggtgctga 1440  
tgccgctggc gattcaggtt catcatgccg tctgtgatgg cttccatgtc ggcagaatgc 1500  
ttaatgaatt acaacagtac tgcgatgagt ggcagggcgg ggcgtaaaga tctggatccg 1560  
gcttactaaa agccagataa cagtatgcgt atttgcgcgc tgatttttgc ggtataagaa 1620  
B | tatatactga tatgtatacc cgaagtatgt caaaaagagg tgtgctatga agcagcgtat 1680  
tacagtgaca gttgacagcg acagctatca gttgctcaag gcatatatga tgtcaatatc 1740  
tccggtctgg taagcacaac catgcagaat gaagcccgtc gtctgcgtgc cgaacgctgg 1800  
aaagcggaaa atcaggaagg gatggctgag gtcgcccggc ttattgaaat gaacggctct 1860  
tttgctgacg agaacagggg ctgggtgaaat gcagtttaag gtttacacct ataaaagaga 1920  
gagccgttat cgtctgtttg tggatgtaca gagtgatatt attgacacgc ccgggcgacg 1980  
gatggtgatc cccctggcca gtgcacgtct gctgtcagat aaagtctccc gtgaacttta 2040  
cccggtggtg catatcgggg atgaaagctg gcgcatgatg accaccgata tggccagtgt 2100  
gccggtctcc gttatcgggg aagaagtggc tgatctcagc caccgcgaaa atgacatcaa 2160  
aaacgccatt aacctgatgt tctggggaat ataaatgtca ggctccctta tacacagcca 2220  
gtctgcaggt cgaccatagt gactggatat gttgtgtttt acagtattat gtagtctggt 2280  
ttttatgcaa aatctaattt aatatattga tatttatatc attttacgtt tctcgttcag 2340  
ctttcttgta caaagtgggt gatatcgaat tcctgcagcc cgggggatcc actagttcta 2400  
gagcactgcg atgagtggca gggcggggcg taattttttt aaggcagtta ttggtgcct 2460  
taaacgcctg gtgctacgcc tgaataagtg ataataagcg gatgaatggc agaaattcgc 2520  
cggatctttg tgaaggaacc ttacttctgt ggtgtgacat aattggacaa actacctaca 2580  
gagatttaaa gctctaaggt aaatataaaa tttttaagtg tataatgtgt taaactactg 2640  
attctaattg tttgtgtatt ttagattcca acctatggaa ctgatgaatg ggagcagtgg 2700  
tggaatgcct ttaatgagga aaacctgttt tgctcagaag aaatgccatc tagtgatgat 2760  
gaggctactg ctgactctca acattctact cctccaaaaa agaagagaaa ggtagaagac 2820  
ccaaggact ttccttcaga attgctaagt tttttgagtc atgctgtgtt tagtaataga 2880  
actcttgctt gctttgctat ttacaccaca aaggaaaaag ctgcactgct atacaagaaa 2940

B1

attatggaaa	aatattctgt	aacctttata	agtaggcata	acagttataa	tcataacata	3000
ctgttttttc	ttactccaca	caggcataga	gtgtctgcta	ttaataacta	tgctcaaaaa	3060
ttgtgtacct	ttagcttttt	aatttgtaaa	ggggttaata	aggaatattt	gatgtatagt	3120
gccttgacta	gagatcataa	tcagccatac	cacatttgta	gagggtttac	ttgctttaaa	3180
aaacctccca	cacctcccc	tgaacctgaa	acataaaaatg	aatgcaattg	ttgttggttaa	3240
cttgttttatt	gcagcttata	atgggttaca	ataaagcaat	agcatcacia	atttcacaaa	3300
taaagcattt	ttttcactgc	attctagttg	tgggttggtcc	aaactcatca	atgtatctta	3360
tcagtgtctgg	atccccagga	agctcctctg	tgtcctcata	aaccctaacc	tcctctactt	3420
gagaggacat	tccaatcata	ggctgccccat	ccacctctg	tgtcctcctg	ttaattaggt	3480
cacttaacaa	aaaggaaatt	gggtaggggt	ttttcacaga	ccgctttcta	agggtaattt	3540
taaaatatct	gggaagtccc	ttccactgct	gtgttccaga	agtgttggtta	aacagcccac	3600
aaatgtcaac	agcagaaaca	tacaagctgt	cagctttgca	caagggccca	acacctgct	3660
catcaagaag	cactgtgggt	gctgtgttag	taatgtgcaa	aacaggaggc	acattttccc	3720
cacctgtgta	ggttccaaaa	tatctagtgt	tttcattttt	acttggtatca	ggaaccacgc	3780
actccactgg	ataagcatta	tccttatcca	aaacagcctt	gtgggtcagt	ttcatctgct	3840
gactgtcaac	tgtagcattt	tttgggggtta	cagtttgagc	aggatatttg	gtcctgtagt	3900
ttgctaacac	acctgcagc	tccaaagggt	ccccaccaac	agcaaaaaaa	tgaaaatttg	3960
accttgaat	gggttttcca	gcaccatttt	catgagtttt	ttgtgtccct	gaatgcaagt	4020
ttaacatagc	agttaccca	ataacctcag	ttttaacagt	aacagcttcc	cacatcaaaa	4080
tatttccaca	ggttaagtcc	tcattttaa	taggcaaagg	aattgctcta	gagcggccgc	4140
caccgcggtg	gagctccaat	tcgcctcata	gtgagtcgta	ttacgcgcgc	tcactggccg	4200
tcgttttaca	acgtcgtgac	tgggaaaacc	ctggcggttac	ccaacttaat	cgccttgacg	4260
cacatcccc	tttcgccagc	tggcgtaata	gcgaagaggc	ccgcaccgat	cgccttccc	4320
aacagttgcg	cagcctgaat	ggcgaatggg	acgcgccctg	tagcggcgca	ttaagcgcg	4380
cgggtgtggt	ggttacgcgc	agcgtgaccg	ctacacttgc	cagcgcccta	gcgcccgcgc	4440
ctttcgcttt	cttccttcc	ttctctcgca	cgttcgcgcg	ctttccccgt	caagctctaa	4500
atcggggggt	cccttttagg	ttccgattta	gtgctttacg	gcacctcgac	cccaaaaaac	4560
ttgattaggg	tgatgggtca	cgtagtgggc	catcgccctg	atagacggtt	tttcgccctt	4620
tgacgttggg	gtccacgttc	tttaatagtg	gactcttggt	ccaaactgga	acaacactca	4680
acctatctc	ggtctattct	tttgatttat	aagggtttt	gccgatttcg	gcctattggg	4740
taaaaaatga	gctgatttaa	caaaaattta	acgcgaattt	taacaaaata	ttaacgctta	4800

caatttaggt ggcacttttc ggggaaatgt gcgcggaacc cctatttggt tatttttcta 4860  
aatacattca aatatgtatc cgctcatgag acaataaccc tgataaatgc ttcaataata 4920  
ttgaaaaagg aagagtatga gtattcaaca ttcccggtgc gcccttattc ctttttttgc 4980  
ggcatttttg cttcctgttt ttgctcacc agaaacgctg gtgaaagtaa aagatgctga 5040  
agatcagttg ggtgcacgag tgggttacat cgaactggat ctcaacagcg gtaagatcct 5100  
tgagagtttt cgtcccggaag aacgttttcc aatgatgagc actttttaaag ttctgctatg 5160  
tggcgcggtta ttatcccgta ttgacgccgg gcaagagcaa ctcggtcgcc gcatacacta 5220  
ttctcagaat gacttggttg agtactcacc agtcacagaa aagcatctta cggatggcat 5280  
gacagtaaga gaattatgca gtgctgccat aaccatgagt gataaacactg cggccaactt 5340  
acttctgaca acgatcggag gaccgaagga gctaaccgct tttttgcaca acatggggga 5400  
tcatgtaact cgccttgatc gttgggaacc ggagctgaat gaagccatac caaacgacga 5460  
gcgtgacacc acgatgcctg tagcaatggc aacaacgttg cgcaaactat taactggcga 5520  
actacttact ctagcttccc ggcaacaatt aatagactgg atggaggcgg ataaagtgtc 5580  
aggaccactt ctgcgctcgg cccttcgggc tggctgggtt attgctgata aatctggagc 5640  
cggtgagcgt gggctctcgc gtatcattgc agcactgggg ccagatggta agccctcccg 5700  
tategtagtt atctacacga cggggagtca ggcaactatg gatgaacgaa atagacagat 5760  
cgctgagata ggtgcctcac tgattaagca ttggtaactg tcagaccaag ttactcata 5820  
tatactttag attgatttaa aacttcattt ttaattttaa aggatctagg tgaagatcct 5880  
ttttgataat ctcatgacca aaatccctta acgtgagttt tcgttccact gagcgtcaga 5940  
ccccgtagaa aagatcaaag gatcttcttg agatcctttt tttctgcgcg taatctgctg 6000  
cttgcaaaaca aaaaaaccac cgctaccagc ggtgggttgt ttgccggatc aagagctacc 6060  
aactcttttt ccgaaggtaa ctggcttcag cagagcgcag ataccaaata ctgtccttct 6120  
agtgtagccg tagttaggcc accacttcaa gaactctgta gcaccgccta catacctcgc 6180  
tctgctaata ctgttaccag tggctgctgc cagtggcgat aagtctgtc ttaccggggtt 6240  
ggactcaaga cgatagttac cggataaggc gcagcggctc ggctgaacgg ggggttcgtg 6300  
cacacagccc agcttgagc gaacgaccta caccgaactg agatacctac agcgtgagct 6360  
atgagaaagc gccacgcttc ccgaaggag aaaggcggac aggtatccgg taagcggcag 6420  
ggtcggaaca ggagagcgca cgaggagct tccaggggga aacgcctggg atctttatag 6480  
tcctgtcggg tttcgccacc tctgacttga gcgtcgattt ttgtgatgct cgtcaggggg 6540  
gcggagccta tggaaaaacg ccagcaacgc gcccttttta cggttcctgg ccttttgctg 6600  
gccttttgct cacatgttct ttctgcgtt atccctgat tctgtggata accgtattac 6660

B1

cgccctttgag tgagctgata ccgctcgccg cagccgaacg accgagcgca gcgagtcagt 6720  
gagcgaggaa gcggaagagc gcccaatacg caaaccgcct ctccccgcgc gttggccgat 6780  
tcattaatgc agctggcacg acaggtttcc cgactggaaa gcgggcagtg agcgcaacgc 6840  
aattaatgtg agttagctca ctcatlaggc accccaggct ttacacttta tgcttcgggc 6900  
tcgtatgttg tgtggaattg tgagcggata acaatttcac acaggaaaca gctatgacca 6960  
tgattacgcc aagcgcgcaa ttaacctca ctaaaggga caaaagctgg gtaccgggcc 7020  
ccccct 7026

<210> 140

<211> 7278

<212> DNA

<213> pDEST12.2

<220>

<221> gene

<222> (86)..(136)

<223> ori

<220>

<221> gene

<222> (220)..(742)

<223> CMV promoter

<220>

<221> gene

<222> (935)..(1059)

<223> attR1

<220>

<221> gene

<222> (1168)..(1827)

<223> CmR

<220>  
<221> gene  
<222> (1947)..(2031)  
<223> inactivated ccdA

<220>  
<221> gene  
<222> (2169)..(2474)  
<223> ccdB

<220>  
<221> gene  
<222> (2515)..(2639)  
<223> attR2

<220>  
<221> gene  
<222> (2824)..(3186)  
<223> small t & polyA

<220>  
<221> gene  
<222> (3310)..(3378)  
<223> lac

<220>  
<221> gene  
<222> (4363)..(5157)  
<223> neo

B1



<220>

<221> gene

<222> (5680)..(6540)

<223> neo

<400> 140

ggggggcgga gcctatggaa aaacgccagc aacgcggcct ttttacgggt cctggccttt 60  
tgctggcctt ttgctcacat gttcttttct gcgttatccc ctgattctgt ggataaccgt 120  
attaccgcct ttgagtgagc tgataccgct cgcgcagcc gaacgaccga gcgcagcgag 180  
tcagtgagcg aggaagcgga agagctcgcg aatgcatgtc gttacataac ttacggtaaa 240  
tggcccgctt ggctgaccgc ccaacgaccc ccgcccattg acgtcaataa tgacgtatgt 300  
tcccatagta acgccaatag ggactttcca ttgacgtcaa tgggtggagt atttacggta 360  
aactgcccac ttggcagtac atcaagtgtg tcatatgcc agtacgccc ctattgacgt 420  
caatgacggt aaatggccc cctggcatta tgcccagtac atgacctat gggactttcc 480  
tacttggcag tacatctacg tattagtcat cgtattacc atggtgatgc ggttttggca 540  
gtacatcaat gggcgtggat agcggtttga ctcacgggga tttccaagtc tccaccccat 600  
tgacgtcaat gggagtttgt tttggcacca aaatcaacgg gactttccaa aatgtcgtaa 660  
caactccgcc ccattgacgc aaatgggagg taggcgtgta cgggtggagg tctatataag 720  
cagagctcgt ttagtgaacc gtcagatcgc ctggagacgc catccacgct gttttgacct 780  
ccatagaaga caccgggacc gatccagcct ccggaactcta gcctaggccg cgggacggat 840  
aacaatttca cacaggaaac agctatgacc attaggcctt tgcaaaaagc tatttaggtg 900  
acactataga aggtacgcct gcaggtaccg gatcacaagt ttgtacaaaa aagctgaacg 960  
agaaacgtaa aatgatataa atatcaatat attaaattag attttgcata aaaaacagac 1020  
tacataatac tgtaaaacac aacatatcca gtcactatgg cggccgcatt aggcacccca 1080  
ggcttttacac tttatgcttc cggctcgtat aatgtgtgga ttttgagtta ggatccgtcg 1140  
agattttcag gagctaagga agctaaaatg gagaaaaaaa tcaactggata taccaccgtt 1200  
gatatatccc aatggcatcg taaagaacat tttgaggcat ttcagtcagt tgctcaatgt 1260  
acctataacc agaccgttca gctggatatt acggcctttt taaagaccgt aaagaaaaat 1320  
aagcacaagt tttatccggc ctttatccac attcttgcgc gcctgatgaa tgctcatccg 1380  
gaattccgta tggcaatgaa agacggtgag ctggtgatat gggatagtgt tcacccttgt 1440  
tacaccgttt tccatgagca aactgaaacg ttttcatcgc tctggagtga ataccacgac 1500  
gatttccggc agtttctaca catatatccg caagatgtgg cgtgttacgg tgaaaacctg 1560

B1

gcctattttcc ctaaaggggtt tattgagaat atgttttttcg tctcagccaa tccctgggtg 1620  
 agtttcacca gttttgattt aaacgtggcc aatatggaca acttcttcgc ccccgttttc 1680  
 accatgggca aatattatac gcaaggcgac aagggtgctga tgccgctggc gattcaggtt 1740  
 catcatgccg tctgtgatgg cttccatgtc ggcagaatgc ttaatgaatt acaacagtac 1800  
 tgcgatgagt ggcagggcgg ggcgtaaacg cgtggatccg gcttactaaa agccagataa 1860  
 cagtatgcgt atttgccgcg tgattttttgc ggtataagaa tatatactga tatgtatacc 1920  
 cgaagtatgt caaaaagagg tgtgctatga agcagcgtat tacagtgaca gttgacagcg 1980  
 acagctatca gttgctcaag gcatatatga tgtcaatata tccggtctgg taagcacaac 2040  
 catgcagaat gaagcccgtc gtctgcgtgc cgaacgctgg aaagcggaaa atcaggaagg 2100  
 gatggctgag gtcgcccggg ttattgaaat gaacggctct tttgctgacg agaacagggg 2160  
 ctggtgaaat gcagtttaag gtttacacct ataaaagaga gagccgttat cgtctgtttg 2220  
 tggatgtaca gagtgatatt attgacacgc cggggcgacg gatggtgatc cccctggcca 2280  
 gtgcacgtct gctgtcagat aaagtctccc gtgaacttta cccggtggtg catatcgggg 2340  
 atgaaaagctg gcgcatgatg accaccgata tggccagtggt gccggtctcc gttatcgggg 2400  
 aagaagtggc tgatctcagc caccgcgaaa atgacatcaa aaacgccatt aacctgatgt 2460  
 tctggggaat ataaatgtca ggctccctta tacacagcca gtctgcaggt cgaccatagt 2520  
 gactggatat gttgtgtttt acagtattat gtagtctgtt ttttatgcaa aatctaattt 2580  
 aatatattga tatttatatc attttacgtt tctcgttcag ctttcttgta caaagtgggtg 2640  
 atcgcgtgca tgcgacgtca tagctctctc cctatagtga gtcgtattat aagctaggca 2700  
 ctggccgctg ttttacaacg tcgtgactgg gaaaactgct agcttgggat ctttgtgaag 2760  
 gaaccttact tctgtgggtg gacataattg gacaaactac ctacagagat ttaaagctct 2820  
 aaggtaaata taaaattttt aagtgtataa tgtgttaaac tagctgcata tgcttgctgc 2880  
 ttgagagttt tgcttactga gtatgattta tgaaaatatt atacacagga gctagtgatt 2940  
 ctaattgttt gtgtatttta gattcacagt cccaaggctc atttcaggcc cctcagtcct 3000  
 cacagtctgt tcatgatcat aatcagccat accacatttg tagaggtttt acttgcttta 3060  
 aaaaacctcc cacacctccc cctgaacctg aaacataaaa tgaatgcaat tgttggtgtt 3120  
 aacttgttta ttgcagctta taatgggttac aaataaagca atagcatcac aaatttcaca 3180  
 aataaagcat ttttttcaact gcattctagt tgtggtttgt ccaaactcat caatgtatct 3240  
 tatcatgtct ggatcgatcc tgcattaatg aatcggccaa cgcgcgggga gaggcggttt 3300  
 gcgtattggc tggcgtaata gcgaagaggg ccgcaccgat cgcccttccc aacagttgcg 3360  
 cagcctgaat ggcgaatggg acgcgccttg tagcggcgca ttaagcgcg cggtgtggt 3420

B1

ggttacgcgc agcgtgaccg ctacacttgc cagcgcccta gcgcccgcctc ctttcgcttt 3480  
cttcccttcc tttctcgcca cgttcgccgg ctttccccgt caagctctaa atcgggggct 3540  
cccttttaggg ttccgattta gtgcttttac gcacctcgac cccaaaaaac ttgattaggg 3600  
tgatggttca cgtagtgggc catcgccctg atagacgggt tttcgccctt tgacgttgga 3660  
gtccacgttc tttaatagt gactcttggt ccaaactgga acaacactca accctatctc 3720  
gggtctattct tttgatttat aagggatttt gccgatttcg gcctattggt taaaaaatga 3780  
gctgatttaa caaatattta acgcgaattt taacaaaata ttaacgttta caatttcgcc 3840  
tgatgcggtta ttttctcctt acgcatctgt gcggtatttc acaccgcata cgcggtatctg 3900  
cgcgacacca tggcctgaaa taacctctga aagaggaact tggttaggta ctttctgagg 3960  
cggaagaac cagctgtgga atgtgtgtca gttaggggtgt ggaaagtccc caggctcccc 4020  
agcaggcaga agtatgcaaa gcatgcatct caattagtca gcaaccaggt gtggaaagtc 4080  
cccaggctcc ccagcaggca gaagtatgca aagcatgcat ctcaattagt cagcaaccat 4140  
agtcccgccc ctaactccgc ccatcccgcc cctaactccg ccagttccg ccattctcc 4200  
gccccatggc tgactaattt tttttattta tgcagaggcc gaggccgcct cggcctctga 4260  
gctattccag aagtagtgag gaggtttttt tggaggccta ggcttttgca aaaagcttga 4320  
ttcttctgac acaacagtct cgaacttaag gctagagcca ccatgattga acaagatgga 4380  
ttgcacgcag gttctccggc cgcttgggtg gagaggctat tcggctatga ctgggcacaa 4440  
cagacaatcg gctgctctga tgccgcctg ttcgggtgt cagcgaggg gcgcccgggt 4500  
ctttttgtca agaccgacct gtccgggtgc ctgaatgaac tgcaggacga ggcagcgcg 4560  
ctatcggtggc tggccacgac gggcgttcct tgcgcagctg tgctcgacgt tgtcactgaa 4620  
gcgggaaggg actggctgct attgggcgaa gtgcgggggc aggatctcct gtcactcac 4680  
cttgctcctg ccgagaaagt atccatcatg gctgatgcaa tgcggcggt gcatacgctt 4740  
gatccggcta cctgccatt cgaccaccaa gcgaaacatc gcatcgagcg agcacgtact 4800  
cggatggaag ccggtcttgt cgatcaggat gatctggacg aagagcatca ggggctcgcg 4860  
ccagccgaac tgttcgccag gctcaaggcg cgcatgcccg acggcgagga tctcgtcgtg 4920  
acccatggcg atgcctgctt gccgaatatc atggtggaaa atggccgctt ttctggattc 4980  
atcgactgtg gccggctggg tgtggcggac cgctatcagg acatagcggt ggctaccggt 5040  
gatattgctg aagagcttgg cggcgaatgg gctgaccgct tctcgtgct ttacggtatc 5100  
gccgctcccg attcgacgcg catcgccctt tctcgccctt ttgacgagtt cttctgagcg 5160  
ggactctggg gttcgaaatg accgaccaag cgacgcccaa cctgccatca cgatggccgc 5220  
aataaaatat ctttattttt attacatctg tgtgttggtt ttttgtgtga atcgatagcg 5280

B1

ataaggatcc gcgtatggtg cactctcagt acaatctgct ctgatgccgc atagttaagc 5340  
cagccccgac acccgccaac acccgctgac gcgccttgac gggcttgtct gctcccggca 5400  
tccgcttaca gacaagctgt gaccgtctcc gggagctgca tgtgtcagag gttttcaccg 5460  
tcataccga aacgcgcgag acgaaagggc ctctgatac gcctatTTTT ataggTTaat 5520  
gtcatgataa taatggtttc ttagacgtca ggtggcactt ttcggggaaa tgtgcgcgga 5580  
accctatTTt gtttattTTTT ctaaatacat tcaaatatgt atccgctcat gagacaataa 5640  
ccctgataaa tgcttcaata atattgaaaa aggaagagta tgagtattca acatttccgt 5700  
gtcgccctta ttcctTTTTt tgccgcattt tgcttctctg tttttgctca cccagaaacg 5760  
ctggtgaaag taaaagatgc tgaagatcag ttgggtgcac gagtgggtta catcgaactg 5820  
gatctcaaca gcggtgaagat ccttgagagt tttcgccccg aagaacgttt tccaatgatg 5880  
agcactTTta aagttctgct atgtggcgcg gtattatccc gtattgacgc cgggcaagag 5940  
caactcggtc gccgcataca ctattctcag aatgacttgg ttgagtactc accagtcaca 6000  
gaaaagcatc ttacggatgg catgacagta agagaattat gcagtgtgc cataaccatg 6060  
agtgataaca ctgcggccaa cttacttctg acaacgatcg gaggaccgaa ggagctaacc 6120  
gcttttttgc acaacatggg ggatcatgta actcgccttg atcgttggga accggagctg 6180  
aatgaagcca taccaaagcga cgagcgtgac accacgatgc ctgtagcaat ggcaacaacg 6240  
ttgcgcaaac tattaactgg cgaactactt actctagctt cccggcaaca attaatagac 6300  
tggatggagg cggataaagt tgcaggacca cttctgcgct cggcccttcc ggctggctgg 6360  
tttattgctg ataaatctgg agccggtgag cgtgggtctc gcggtatcat tgcagcactg 6420  
gggccagatg gtaagcctc ccgtatcgta gttatctaca cgacggggag tcaggcaact 6480  
atggatgaac gaaatagaca gatcgtgag atagggtgct cactgattaa gcattggtaa 6540  
ctgtcagacc aagtttactc atatatactt tagattgatt taaaacttca tttttaattt 6600  
aaaaggatct aggtgaagat cttttttgat aatctcatga ccaaaatccc ttaacgtgag 6660  
ttttcgttcc actgagcgtc agaccccgta gaaaagatca aaggatcttc ttgagatcct 6720  
ttttttctgc gcgtaatctg ctgcttgcaa acaaaaaaac caccgctacc agcggtggtt 6780  
tgtttgccgg atcaagagct accaactctt tttccgaagg taactggctt cagcagagcg 6840  
cagataccaa atactgtcct tctagtgtag ccgtagttag gccaccactt caagaactct 6900  
gtagcaccgc ctacatacct cgctctgcta atcctgttac cagtggctgc tgccagtggc 6960  
gataagtcgt gtcttaccgg gttggactca agacgatagt taccggataa ggcgagcg 7020  
tcgggctgaa cgggggggtc gtgcacacag cccagcttgg agcgaacgac ctacaccgaa 7080  
ctgagatacc tacagcgtga gcattgagaa agcgccacgc tttccgaagg gagaaaggcg 7140

B1

gacaggtatc cggtaagcgg cagggtcgga acaggagagc gcacgagggg gcttccaggg 7200  
ggaaacgcct ggtatcttta tagtcctgtc gggtttcgcc acctctgact tgagcgtcga 7260  
tttttgtgat gctcgtca 7278

<210> 141

<211> 5848

<212> DNA

<213> pDEST13

<220>

<221> gene

<222> (599) .. (1458)

<223> ampR

<220>

<221> gene

<222> (3998) .. (4123)

<223> attR1

<220>

<221> gene

<222> (4372) .. (5031)

<223> CmR

<220>

<221> gene

<222> (5151) .. (5235)

<223> inactivated ccdA

<220>

<221> gene

<222> (5373) .. (5678)

B1

<223> ccdB

<220>

<221> gene

<222> (5719) .. (5843)

<223> attR2

<400> 141

ttcactggcc gtcgtttttac aacgtcgtga ctgggaaaac cctggcggtta cccaacttaa 60  
tcgccttgca gcacatcccc ctttcgccag ctggcgtaat agcgaagagg cccgcaccga 120  
tcgcccttcc caacagttgc gcagcctgaa tggcgaatgg cgcctgatgc ggtattttct 180  
ccttacgcat ctgtgcggta tttcacaccg catatgggtgc actctcagta caatctgctc 240  
tgatgccgca tagttaagcc agccccgaca cccgccaaaca cccgctgacg cgccttgacg 300  
ggcttgtctg ctcccggcat ccgcttacag acaagctgtg accgtctccg ggagctgcat 360  
gtgtcagagg ttttcaccgt catcacgaa acgcgcgaga cgaaagggcc tcgtgatacg 420  
cctattttta taggttaatg tcatgataat aatggtttct tagacgtcag gtggcacttt 480  
tcgggggaaat gtgcgcggaa cccctatttg tttatttttc taaatacatt caaatatgta 540  
tccgctcatg agacaataac cctgataaat gcttcaataa tattgaaaaa ggaagagtat 600  
gagtattcaa catttcctg tgcgcccttat tccctttttt gcggcatttt gccttcctgt 660  
ttttgctcac ccagaaacgc tggtgaaagt aaaagatgct gaagatcagt tgggtgcacg 720  
agtgggttac atcgaactgg atctcaacag cggtaagatc cttgagagtt ttcgccccga 780  
agaacgtttt ccaatgatga gcacttttaa agttctgcta tgtggcgcgg tattatcccc 840  
tattgacgcc gggcaagagc aactcggtcg ccgcatacac tattctcaga atgacttggg 900  
tgagtactca ccagtcacag aaaagcatct tacggatggc atgacagtaa gagaattatg 960  
cagtgtgcc ataaccatga gtgataacac tgcggccaac ttacttctga caacgatcgg 1020  
aggaccgaag gagctaaccg cttttttgca caacatgggg gatcatgtaa ctgccttga 1080  
tcgttgggaa ccggagctga atgaagccat accaaacgac gagcgtgaca ccacgatgcc 1140  
tgtagcaatg gcaacaacgt tgcgcaaact attaaactggc gaactactta ctctagcttc 1200  
ccggcaacaa ttaatagact ggatggaggc ggataaagtt gcaggaccac ttctgcgctc 1260  
ggcccttccg gctggctggg ttattgctga taaatctgga gccggtgagc gtgggtctcg 1320  
cggatatcatt gcagcactgg ggccagatgg taagccctcc cgtatcgtag ttatctacac 1380  
gacggggagt caggcaacta tggatgaacg aaatagacag atcgctgaga taggtgcctc 1440

B1

actgattaag cattggtaac tgtcagacca agtttactca tatatacttt agattgattt 1500  
 aaaacttcat ttttaattta aaaggatcta ggtgaagatc ctttttgata atctcatgac 1560  
 caaaatccct taacgtgagt ttctgttcca ctgagcgtca gaccccgtag aaaagatcaa 1620  
 aggatcttct tgagatcctt tttttctgcg cgtaatctgc tgcttgcaaa caaaaaaacc 1680  
 accgctacca gcggtggttt gtttgccgga tcaagagcta ccaactcttt ttccgaaggt 1740  
 aactggcttc agcagagcgc agataccaaa tactgttctt ctagtgtagc cgtagttagg 1800  
 ccaccacttc aagaactctg tagcaccgcc tacatacctc gctctgctaa tcctgttacc 1860  
 agtggctgct gccagtggcg ataagtcgtg tcttaccggg ttggactcaa gacgatagtt 1920  
 accggataag ggcagcgggt cgggctgaac ggggggttcg tgcacacagc ccagettgga 1980  
 gcgaacgacc tacaccgaac tgagatacct acagcgtgag cattgagaaa gcgccacgct 2040  
 tcccgaaggg agaaaggcgg acaggatatc ggtaagcggc agggctcgaa caggagagcg 2100  
 cacgagggag cttccagggg gaaacgcctg gtatctttat agtcctgtcg ggtttcgcca 2160  
 cctctgactt gagcgtcgat ttttgtgatg ctgcgcaggg gggcggagcc tatggaaaaa 2220  
 cgccagcaac gcggcctttt tacggttcct ggcccttttg tggccttttg ctcacatggt 2280  
 ctttctgcg ttatccctg attctgtgga taaccgtatt accgccttg agtgagctga 2340  
 taccgctcgc cgcagccgaa cgaccgagcg cagcgagtca gtgagcgagg aagcgggaaga 2400  
 gcgcccataa cgcaaaccgc ctctccccgc gcgttgccg attcattaat gcagctggca 2460  
 cgacaggttt cccgactgga aagcgggcag tgagcgcaac gcaattaatg tgagttagct 2520  
 cactcattag gcacccagg ctttacactt tatgcttccg gctcgtatgt tgtgtggaat 2580  
 tgtgagcgga taacaatttc acacaggaaa cagctatgac catgattacg ccaagcttgg 2640  
 ctgcagggtg tgattatcag ccagcagaga ttaaggaaaa cagacagggt tattgagcgc 2700  
 ttatctttcc ctttattttt gctgcggtaa gtcgcataaa aaccattctt cataattcaa 2760  
 tccatttact atgttatgtt ctgaggggag tgaaaattcc cctaattcga tgaagattct 2820  
 tgctcaattg ttatcagcta tgcgccgacc agaacacctt gccgatcagc caaacgtctc 2880  
 ttcaggccac tgactagcga taactttccc cacaacggaa caactctcat tgcattggat 2940  
 cattgggtac tgtgggttta gtggttgtaa aaacacctga ccgctatccc tgatcagttt 3000  
 cttgaaggta aactcatcac cccaagtct ggctatgcag aaatcacctg gctcaacagc 3060  
 ctgctcaggg tcaacgagaa ttaacattcc gtcaggaaaag cttggcttgg agcctgttgg 3120  
 tgcggtcatg gaattacctt caacctcaag ccagaatgca gaatcactgg cttttttggt 3180  
 tgtgcttacc catctctccg catcaccttt ggtaaagggt ctaagcttag gtgagaacat 3240  
 ccctgcctga acatgagaaa aaacagggtg ctcatactca cttctaagtg acggctgcat 3300

B1

actaacgct tcatacatct cgtagatttc tctggcgatt gaagggctaa attcttcaac 3360  
gctaactttg agaatttttg caagcaatgc ggcgttataa gcatttaatg cattgatgcc 3420  
attaaataaa gcaccaacgc ctgactgccc catccccatc ttgtctgcga cagattcctg 3480  
ggataagcca agttcatttt tctttttttc ataaattgct ttaaggcgac gtgcgtcctc 3540  
aagctgctct tgtgttaatg gtttcttttt tgtgctcata cgttaaactc atcacgcga 3600  
gggataaata tctaacaccg tgcgtgttga ctattttacc tctggcgggtg ataatgggtg 3660  
catgtactaa ggaggttgta tggaacaacg cataaccctg aaagattatg caatgcgctt 3720  
tgggcaaacc aagacagcta aagatctctc acctaccaa caatgcccc ctgcaaaaaa 3780  
taaattcata taaaaaacat acagataacc atctgcgggtg ataaattatc tctggcgggtg 3840  
ttgacataaa taccactggc ggtgatactg agcacatcag caggacgcac tgaccaccat 3900  
gaaggtgacg ctcttaaaaa ttaagccctg aagaaggga gcattcaaag cagaaggctt 3960  
tgggggtgtg gatacgaaac gaagcattgg gatcatcaca agtttgtaca aaaaagctga 4020  
acgagaaacg taaaatgata taaatatcaa tatattaaat tagattttgc ataaaaaaca 4080  
gactacataa tactgtaaaa cacaacatat ccagtcacta tggcggccgc taagttggca 4140  
gcacaccccg acgcactttg cgccgaataa atacctgtga cggaagatca cttcgagaa 4200  
taaataaatc ctggtgtccc tgttgatacc ggggaagccct gggccaactt ttggcgaaaa 4260  
tgagacgttg atcggcacgt aagaggttcc aactttcacc ataatgaaat aagatcacta 4320  
ccgggcgtat tttttgagtt atcgagattt tcaggagcta aggaagctaa aatggagaaa 4380  
aaaatcactg gatataccac cgttgatata tcccaatggc atcgtaaaga acattttgag 4440  
gcatttcagt cagttgtca atgtacctat aaccagaccg ttcagctgga tattacggcc 4500  
tttttaaaga ccgtaaagaa aaataagcac aagttttatc cggcctttat tcacattctt 4560  
gcccgcctga tgaatgtca tccggaattc cgtatggcaa tgaaagacgg tgagctgggtg 4620  
atatgggata gtgttcaccc ttgttacacc gttttccatg agcaaactga aacgttttca 4680  
tcgtctgga gtgaatacca cgacgatttc cggcagtttc tacacatata ttcgcaagat 4740  
gtggcggtgt acggtgaaaa cctggcctat ttccctaaag ggtttattga gaatatgttt 4800  
ttcgtctcag ccaatccctg ggtgagtttc accagttttg atttaaactg ggccaatatg 4860  
gacaacttct tcgccccgt tttcaccatg ggcaaatatt atacgcaagg cgacaagggtg 4920  
ctgatgccgc tggcgattca ggttcacat gccgtctgtg atggcttcca tgtcggcaga 4980  
atgcttaatg aattacaaca gtactgcgat gagtggcagg gcggggcgta aacgcgtgga 5040  
tccggcttac taaaagccag ataacagtat gcgtatttgc gcgctgattt ttgcgggtata 5100  
agaatatata ctgatatgta taccgaagt atgtcaaaaa gaggtgtgct atgaagcagc 5160

B 1



gtattacagt gacagttgac agcgacagct atcagttgct caaggcatat atgatgtcaa 5220  
tattctccggt ctggtaagca caaccatgca gaatgaagcc cgtcgtctgc gtgccgaacg 5280  
ctggaaagcg gaaaatcagg aagggatggc tgaggtcgcc cggtttattg aaatgaacgg 5340  
ctcttttgct gacgagaaca gggactgggtg aaatgcagtt taaggtttac acctataaaa 5400  
gagagagccg ttatcgtctg tttgtggatg tacagagtga tattattgac acgcccgggc 5460  
gacggatggt gatccccctg gccagtgcac gtctgctgtc agataaagtc tcccgtgaac 5520  
tttaccggt ggtgcatatc ggggatgaaa gctggcgcat gatgaccacc gatatggcca 5580  
gtgtgccggt ctccgttatac ggggaagaag tggctgatct cagccaccgc gaaaatgaca 5640  
tcaaaaacgc cattaacctg atgttctggg gaatataaat gtcaggctcc gttatacaca 5700  
gccagtctgc aggtcgacca tagtgactgg atatgttggtg ttttacagta ttatgtagtc 5760  
tgttttttat gcaaaatcta atttaataa ttgatattta tatcatttta cgtttctcgt 5820  
tcagctttct tgtacaaagt ggtgataa 5848

<210> 142

<211> 6422

<212> DNA

<213> pDEST14

<220>

<221> gene

<222> (61)..(185)

<223> attR1

<220>

<221> gene

<222> (435)..(1094)

<223> CmR

<220>

<221> gene

<222> (1214)..(1298)

<223> inactivated ccdA

<220>  
<221> gene  
<222> (1436)..(1741)  
<223> ccdB

<220>  
<221> gene  
<222> (1782)..(1906)  
<223> attR2

B1  
<220>  
<221> gene  
<222> (2632)..(3489)  
<223> ampR

<400> 142  
cgatcccgcg aaattaatac gactcactat agggagacca caacggtttc cctctagatc 60  
acaagtttgt acaaaaaagc tgaacgagaa acgtaaaatg atataaatat caatatatta 120  
aattagattt tgcataaaaa acagactaca taatactgta aaacacaaca tatccagtca 180  
ctatggcggc cgctaagttg gcagcatcac ccgacgcact ttgcgccgaa taaataacctg 240  
tgacggaaga tcacttcgca gaataaataa atcctgggtg ccttggtgat accgggaagc 300  
cctgggccaa cttttggcga aaatgagacg ttgatcggca cgtaagaggt tccaactttc 360  
accataatga aataagatca ctaccgggcg ttttttttga gttatcgaga ttttcaggag 420  
ctaaggaagc taaaatggag aaaaaaatca ctggatatac caccgttgat atatcccaat 480  
ggcatcgtaa agaacatttt gaggcatttc agtcagttgc tcaatgtacc tataaccaga 540  
ccgttcagct ggatattacg gcctttttta agaccgtaaa gaaaaataag cacaagtttt 600  
atccggcctt tattcacatt cttgcccgcc tgatgaatgc tcacccggaa ttccgtatgg 660  
caatgaaaga cggtgagctg gtgatatggg atagtgttca cccttgttac accgttttcc 720  
atgagcaaac tgaaacgttt tcacgcgtct ggagtgaata ccacgacgat ttccggcagt 780  
ttctacacat atattcgcaa gatgtggcgt gttacgggtga aaacctggcc tatttcctta 840  
aagggtttat tgagaatatg tttttcgtct cagccaatcc ctgggtgagt ttcaccagtt 900

ttgattttaa cgtggccaat atggacaact tcttcgcccc cgttttcacc atgggcaa 960  
attatacgca aggcgacaag gtgctgatgc cgctggcgat tcaggttcat catgccgtct 1020  
gtgatggcct ccatgtcggc agaatgctta atgaattaca acagtactgc gatgagtggc 1080  
agggcggggc gtaaacgcgt ggatccggct tactaaaagc cagataacag tatgcgtatt 1140  
tgcgcgctga tttttgcggt ataagaatat atactgatat gtatacccgga agtatgtcaa 1200  
aaagaggtgt gctatgaagc agcgtattac agtgacagtt gacagcgaca gctatcagtt 1260  
gctcaaggca tatatgatgt caatatctcc ggtctggtaa gcacaacat gcagaatgaa 1320  
gcccgtcgtc tgcgtgccga acgctggaaa gcggaatac aggaagggat ggctgaggtc 1380  
gcccggttta ttgaaatgaa cggctctttt gctgacgaga acagggactg gtgaaatgca 1440  
gtttaagggt tacacctata aaagagagag ccgttatcgt ctgtttgtgg atgtacagag 1500  
tgatattatt gacacgcccg ggcgacggat ggtgatcccc ctggccagtg cacgtctgct 1560  
gtcagataaa gtctcccggt aactttaccc ggtggtgcat atcggggatg aaagctggcg 1620  
catgatgacc accgatatgg ccagtgtgcc ggtctccgtt atcggggaag aagtggctga 1680  
tctcagccac cgcgaaaatg acatcaaaaa cgccattaac ctgatgttct ggggaatata 1740  
aatgtcaggc tcccttatac acagccagtc tgcaggtcga ccatagtac tggatatgtt 1800  
gtgttttaca gtattatgta gtctgttttt tatgcaaaat ctaattta atattgatat 1860  
ttatatcatt ttacgtttct cgttcagctt tcttgtaaa agtggtgatg atccggctgc 1920  
taacaaagcc cgaaaggaag ctgagttggc tgctgccacc gctgagcaat aactagcata 1980  
accccttggg gcctctaaac gggctctgag ggggtttttg ctgaaaggag gaactatct 2040  
cggatatcca caggacgggt gtggtcgcca tgatcgcgta gtcgatagt gtcceaagta 2100  
gcgaagcgag caggactggg cggcgcccaa agcggtcgga cagtgtccg agaacgggtg 2160  
cgcatagaaa ttgcatcaac gcatatagcg ctagcagcac gccatagtga ctggcgatgc 2220  
tgtcggaatg gacgatatcc cgcaagaggc ccggcagtag cggcataacc aagcctatgc 2280  
ctacagcatc cagggtgacg gtgccgagga tgacgatgag cgcattgtta gatttcatac 2340  
acgggtgcctg actgcgttag caatttaact gtgataaact accgcattaa agcttatcga 2400  
tgataagctg tcaaacaatga gaattcttga agacgaaagg gcctcgtgat acgcctatct 2460  
ttataggtta atgtcatgat aataatgggt tcttagacgt cagggtggcac ttttcgggga 2520  
aatgtgcgcg gaaccctat ttgtttatct ttctaaatac attcaaata gtatccgctc 2580  
atgagacaat aaccctgata aatgcttcaa taatattgaa aaaggaagag tatgagtatt 2640  
caacatttcc gtgtcgccct tattcccttt tttgcggcat tttgccttcc tgtttttgct 2700  
caccagaaa cgctggtgaa agtaaaagat gctgaagatc agttgggtgc acgagtgggt 2760

B1

tacatcgaac tggatctcaa cagcggtaag atccttgaga gttttcgccc cgaagaacgt 2820  
 tttccaatga tgagcacttt taaagttctg ctatgtggcg cggattatc ccgtgttgac 2880  
 gccgggcaag agcaactcgg tcgccgcata cactattctc agaatgactt ggttgagtac 2940  
 tcaccagtca cagaaaagca tcttacggat ggcatgacag taagagaatt atgcagtgct 3000  
 gccataacca tgagtgataa cactgcggcc aacttacttc tgacaacgat cggaggaccg 3060  
 aaggagctaa ccgctttttt gcacaacatg ggggatcatg taactcgcct tgatcgttgg 3120  
 gaaccggagc tgaatgaagc cataccaaac gacgagcgtg acaccacgat gcctgcagca 3180  
 atggcaacaa cgttgcgcaa actattaact ggcgaactac ttactctagc ttcccgga 3240  
 caattaatag actggatgga ggcggataaa gttgcaggac cacttctgcg ctcgccctt 3300  
 ccggttggt ggtttattgc tgataaatct ggagccggtg agcgtgggtc tcgcggtatc 3360  
 attgcagcac tggggccaga tggttaagccc tcccgatatc tagttatcta cagcagggg 3420  
 agtcaggcaa ctatggatga acgaaataga cagatcgctg agatagggtg ctactgatt 3480  
 aagcattggt aactgtcaga ccaagtttac tcatatatac tttagattga tttaaaactt 3540  
 catttttaat ttaaaaggat ctagggtgaag atcctttttg ataatctcat gacaaaatc 3600  
 ccttaacgtg agttttcgtt ccactgagcg tcagaccccg tagaaaagat caaaggatct 3660  
 tcttgagatc ctttttttct gcgcgtaatc tgctgcttgc aaacaaaaaa accaccgcta 3720  
 ccagcgggtg tttgtttgcc ggatcaagag ctaccaactc tttttccgaa ggtaactggc 3780  
 ttcagcagag cgcagatacc aaatactgtc cttctagtgt agccgtagtt aggccaccac 3840  
 ttcaagaact ctgtagcacc gcctacatac ctgcctctgc taatcctgtt accagtggct 3900  
 gctgccagtg gcgataagtc gtgtcttacc gggttggact caagacgata gttaccggat 3960  
 aaggcgcagc ggtcgggctg aacggggggt tcgtgcacac agcccagctt ggagcgaacg 4020  
 acctacaccg aactgagata cctacagcgt gagctatgag aaagcgcac gcttcccgaa 4080  
 gggagaaaag cggacaggta tccggttaagc ggcagggtcg gaacaggaga gcgcacgagg 4140  
 gagcttccag ggggaaacgc ctggtatctt tatagtctg tcgggtttcg ccacctctga 4200  
 cttgagcgtc gatttttgtg atgctcgtca ggggggcgga gcctatggaa aaacgccagc 4260  
 aacgcggcct ttttacggtt cctggccttt tgctggcctt ttgctcacat gttctttcct 4320  
 gcgttatccc ctgattctgt ggataaccgt attaccgcct ttgagtgagc tgataccgct 4380  
 cgccgcagcc gaacgaccga gcgcagcgag tcagtgagcg aggaagcgga agagcgccgt 4440  
 atgcggtatt ttctccttac gcctctgtgc ggtatttcac accgcatata tgggtgcactc 4500  
 tcagtacaat ctgctctgat gccgcatagt taagccagta tacactccgc tatcgctacg 4560  
 tgactgggtc atggctgcgc cccgacaccc gccaacaccc gctgacgcgc cctgacgggc 4620

B1

ttgtctgctc ccggcatccg cttacagaca agctgtgacc gtctccggga gctgcatgtg 4680  
tcagaggttt tcaccgtcat caccgaaacg cgcgaggcag ctgcggtaaa gctcatcage 4740  
gtggtcgtga agcgattcac agatgtctgc ctgttcatcc gcgtccagct cgttgagttt 4800  
ctccagaagc gttaatgtct ggcttctgat aaagcggggc atgttaaggg cggttttttc 4860  
ctgtttggtc actgatgcct ccgtgtaagg gggattttctg ttcattggggg taatgatacc 4920  
gatgaaacga gagaggatgc tcacgatacg gggtactgat gatgaacatg cccgggttact 4980  
ggaacgttgt gagggtaaac aactggcggt atggatgcgg cgggaccaga gaaaaatcac 5040  
tcagggtcaa tgccagcgct tcgttaatac agatgtaggt gttccacagg gtagccagca 5100  
gcattcctgcg atgcagatcc ggaacataat ggtgcagggc gctgacttcc gcgtttccag 5160  
actttacgaa acacggaaac cgaagaccat tcatgttggt gctcaggtcg cagacgtttt 5220  
gcagcagcag tcgcttcacg ttcgctcgcg tatcggtgat tcattctgct aaccagtaag 5280  
gcaaccccg cagcctagcc gggtcctcaa cgacaggagc acgatcatgc gcacccgtgg 5340  
ccaggacca acgctgccc agatgcgccg cgtgcggctg ctggagatgg cggacgcgat 5400  
ggatatgttc tgccaagggt tggtttgccg attcacagtt ctccgcaaga attgattggc 5460  
tccaattctt ggagtgggtga atccgttagc gaggtgccgc cggcttccat tcaggtcgag 5520  
gtggccccgc tccatgcacc gcgacgcaac gcggggaggc agacaaggta tagggcggcg 5580  
cctacaatcc atgccaaccc gttccatgtg ctgcgccagg cggcataaat cgccgtgacg 5640  
atcagcggtc cagtgatcga agttaggctg gtaagagccg cgagcgatcc ttgaagctgt 5700  
ccctgatggt cgtcatctac ctgcctggac agcatggcct gcaacgcggg catcccgatg 5760  
ccgccggaag cgagaagaat cataatgggg aaggccatcc agcctcgcgt cgcgaacgcc 5820  
agcaagacgt agcccagcgc gtcggccgcc atgccggcga taatggcctg cttctcgcgc 5880  
aaacgttttg tggcgggacc agtgacgaag gcttgagcga gggcgtgcaa gattccgaat 5940  
accgcaagcg acaggccgat catcgtcgcg ctccagcgaa agcggtcctc gccgaaaatg 6000  
accagagcg ctgccggcac ctgtcctacg agttgcatga taaagaagac agtcataagt 6060  
gcggcgacga tagtcatgcc ccgcgcccac cggaaggagc tgactgggtt gaaggctctc 6120  
aagggcacgc gtcgatcgac gctctccctt atgcgactcc tgcattagga agcagcccag 6180  
tagtaggttg aggccgttga gcaccgcgc cgcaaggaaat ggtgcatgca aggagatggc 6240  
gcccacagc cccccggcca cggggcctgc caccataccc acgccgaaac aagcgctcat 6300  
gagcccgaag tggcgagccc gatcttcccc atcggtgatg tcggcgatat aggcgccagc 6360  
aaccgcacct gtggcgccgg tgatgccggc cactgatcgt ccggcgtaga ggatcgagat 6420  
ct 6422

<210> 143  
<211> 7013  
<212> DNA  
<213> pDEST15

<220>  
<221> gene  
<222> (108)..(776)  
<223> GST

<220>  
<221> gene  
<222> (792)..(916)  
<223> attR1

<220>  
<221> gene  
<222> (1025)..(1537)  
<223> CmR

<220>  
<221> gene  
<222> (1804)..(1888)  
<223> inactivated ccdA

<220>  
<221> gene  
<222> (2026)..(2331)  
<223> ccdB

<220>

<221> gene

<222> (2372) .. (2496)

<223> attR2

<220>

<221> gene

<222> (3233) .. (4093)

<223> ampR

<400> 143

atcgagatct cgatcccgcg aaattaatac gactcactat agggagacca caacggtttc 60  
cctctagaaa taattttggt taactttaag aaggagatat acatatgtcc cctatactag 120  
gttattggaa aattaagggc cttgtgcaac cactcgcact tcttttggaa tatcttgaag 180  
aaaaatatga agagcatttg tatgagcgcg atgaagggtga taaatggcga aacaaaaagt 240  
ttgaattggg tttggagttt cccaatcttc cttattatat tgatggtgat gttaaattaa 300  
cacagtctat ggccatcata cgttatatag ctgacaagca caacatgttg ggtggttgtc 360  
caaaagagcg tgcagagatt tcaatgcttg aaggagcggg tttggatatt agatacgggtg 420  
tttcgagaat tgcatatagt aaagactttg aaactctcaa agttgatttt cttagcaagc 480  
tacctgaaat gctgaaaatg ttcgaagatc gtttatgtca taaaacatat ttaaattggtg 540  
atcatgtaac ccacccctgac ttcattgttg atgacgctct tgatgttggt ttatacatgg 600  
acccaatgtg cctggatgag ttcccaaaat tagtttgttt taaaaaacgt attgaagcta 660  
tcccacaaat tgataagtac ttgaaatcca gcaagtatat agcatggcct ttgcagggct 720  
ggcaagccac gtttgggtggg ggcgaccatc ctccaaaatc ggatctgggt ccgcgtccat 780  
ggtcgaatca aacaagtttg tacaaaaaag ctgaacgaga aacgtaaaat gatataaata 840  
tcaatatatt aaattagatt ttgcataaaa aacagactac ataatactgt aaaacacaac 900  
atatccagtc actatggcgg ccgcattagg cccccaggc tttacacttt atgcttccgg 960  
ctcgataaat gtgtggattt tgagtttagga tccgtcgaga ttttcaggag ctaaggaagc 1020  
taaaatggag aaaaaaatca ctggatatac caccgttgat atatcccaat ggcacgtgaa 1080  
agaacatttt gaggcatttc agtcagttgc tcaatgtacc tataaccaga ccgttcagct 1140  
ggatattacg gcctttttta agaccgtaaa gaaaaataag cacaagtttt atccggcctt 1200  
tattcacatt cttgcccggc tgatgaatgc tcatccggaa ttccgtatgg caatgaaaga 1260  
cggtagagctg gtgatatggg atagtgttca cccttggtac accgttttcc atgagcaaac 1320

tgaaacgttt tcatcgctct ggagtgaata ccacgacgat ttccggcagt ttctacacat 1380  
atattcgcaa gatgtggcgt gttacgggtga aaacctggcc tatttcccta aagggtttat 1440  
tgagaatatg tttttcgtct cagccaatcc ctgggtgagt ttcaccagtt ttgatttaaa 1500  
cgtggccaat atggacaact tcttcgcccc cgttttcacc atgggcaaatt attatacgca 1560  
aggcgacaag gtgctgatgc cgctggcgat tcaggttcat catgccgtct gtgatggctt 1620  
ccatgtcggc agaatgctta atgaattaca acagtactgc gatgagtggc agggcggggc 1680  
gtaatctaga ggatccggct tactaaaagc cagataacag tatgcgtatt tgcgcgctga 1740  
tttttgcggt ataagaatat atactgatat gtatacccgga agtatgtcaa aaagaggtgt 1800  
gctatgaagc agcgtattac agtgacagtt gacacgcgaca gctatcagtt gctcaaggca 1860  
tatatgatgt caatatctcc ggtctggtta gcacaacccat gcagaatgaa gcccgctcgtc 1920  
tgcggtgccga acgctggaaa gcggaaaatc aggaagggat ggctgaggtc gcccggttta 1980  
ttgaaatgaa cggctctttt gctgacgaga acagggactg gtgaaatgca gtttaagggtt 2040  
tacacctata aaagagagag ccgttatcgt ctggttggtg atgtacagag tgatattatt 2100  
gacacgcccg ggcgacggat ggtgatcccc ctggccagtg cacgtctgct gtcagataaa 2160  
gtctcccgtg aactttaccc ggtggtgcat atcgggggatg aaagctggcg catgatgacc 2220  
accgatatgg ccagtgtgcc ggtctccgtt atcgggggaag aagtggctga tctcagccac 2280  
cgcgaaaatg acatcaaaaa cgccattaac ctgatgttct ggggaatata aatgtcaggc 2340  
tcccttatac acagccagtc tgcaggctga ccatagtac tggatatgtt gtgttttaca 2400  
gtattatgta gtctgttttt tatgcaaaat ctaatttaat atattgatat ttatatcatt 2460  
ttacgtttct cgttcagctt tcttgtaaa agtggtttga ttcgaccggg gatccggctg 2520  
ctaacaaagc ccgaaaggaa gctgagttgg ctgctgccac cgctgagcaa taactagcat 2580  
aacccttgg ggctctaaa cgggtcttga ggggtttttt gctgaaagga ggaactatat 2640  
ccggatatcc acaggacggg tgtggtcgcc atgatcgctg agtcgatagt ggctccaagt 2700  
agcgaagcga gcaggactgg gcggcgggca aagcggtcgg acagtgtcc gagaacgggt 2760  
gcgcatagaa attgcatcaa cgcātatagc gctagcagca cgccatagtg actggcgatg 2820  
ctgtcggaat ggacgatatc ccgcaagagg cccggcagta ccggcataac caagcctatg 2880  
cctacagcat ccagggtgac ggtgcccagg atgacgatga gcgcattgtt agatttcata 2940  
cacgggtgcct gactgcgtta gcaatttaac tgtgataaac taccgcatta aagcttatcg 3000  
atgataagct gtcaaacatg agaattcttg aagacgaaag ggctcgtga tacgcctatt 3060  
tttatagggt aatgtcatga taataatggt ttcttagacg tcagggtggca cttttcgggg 3120  
aaatgtgcgc ggaacccta tttgtttatt tttctaaata cattcaaata tgtatccgct 3180

B1



catgagacaa taaccctgat aaatgcttca ataatatgtga aaaaggaaga gtatgagtat 3240  
tcaacatttc cgtgtcgccc ttattccctt ttttgcggca ttttgccttc ctgtttttgc 3300  
tcaccagaa acgctggtga aagtaaaaga tgctgaagat cagttgggtg cagcagtggtg 3360  
ttacatcgaa ctggatctca acagcggtaa gatccttgag agttttcgcc ccgaagaacg 3420  
ttttccaatg atgagcactt ttaaagttct gctatgtggc gcggtattat cccgtgttga 3480  
cgccgggcaa gagcaactcg gtcgccgcat acactattct cagaatgact tggttgagta 3540  
ctcaccagtc acagaaaagc atcttacgga tggcatgaca gtaagagaat tatgcagtgc 3600  
tgccataacc atgagtgata aactgcggc caacttactt ctgacaacga tcggaggacc 3660  
gaaggagcta accgcttttt tgcacaacat gggggatcat gtaactcgcc ttgatcgttg 3720  
ggaaccggag ctgaatgaag ccataccaaa cgacgagcgt gacaccacga tgcctgcagc 3780  
aatggcaaca acgttgcgca aactattaac tggcgaacta cttactctag cttcccgga 3840  
acaattaata gactggatgg aggcggataa agttgcagga ccacttctgc gctcgccct 3900  
tccggctggc tggtttattg ctgataaatc tggagccggt gagcgtgggt ctgcggtat 3960  
cattgcagca ctggggccag atggtaagcc ctcccgatc gtagttatct acacgacggg 4020  
gagtcaggca actatggatg aacgaaatag acagatcgct gagataggtg cctcactgat 4080  
taagcattgg taactgtcag accaagttta ctcatatata ctttagattg atttaaaact 4140  
tcatttttaa tttaaaagga tctaggtgaa gatccttttt gataatctca tgacaaaaat 4200  
cccttaacgt gagttttcgt tccactgagc gtcagacccc gtagaaaaga tcaaaggatc 4260  
ttcttgagat cttttttttc tgcgcgtaat ctgctgcttg caaacaaaaa aaccaccgt 4320  
accagcgggt gtttgtttgc cggatcaaga gctaccaact ctttttccga aggtaactgg 4380  
cttcagcaga ggcagatac caaatactgt ccttctagt tagccgtagt taggccacca 4440  
cttcaagaac tctgtagcac cgcctacata cctcgctctg ctaatcctgt taccagtggc 4500  
tgctgccagt ggcgataagt cgtgtcttac cgggttgga tcaagacgat agttaccgga 4560  
taaggcgag cggtcgggct gaacgggggg ttcgtgcaca cagcccagct tggagcgaac 4620  
gacctacac gaactgagat acctacagcg tgagctatga gaaagcgcca cgcttccga 4680  
aggagaaaag gcgacaggt atccggtaag cggcagggtc ggaacaggag agcgacagag 4740  
ggagcttcca gggggaaacg cctgggtatct ttatagtcct gtcgggtttc gccacctctg 4800  
acttgagcgt cgatttttgt gatgctcgtc aggggggagg agcctatgga aaaacgccag 4860  
caacgcggcc tttttacggt tcttggcctt ttgctggcct tttgctcaca tgttctttcc 4920  
tgcttatcc cctgattctg tggataaccg tattaccgcc tttgagttag ctgataaccgc 4980  
tcgccgcagc cgaacgaccg agcgacgcga gtcagtgagc gaggaagcgg aagagcgct 5040

B1

gatgcggtat tttctcctta cgcattctgtg cggatatttca caccgcatat atgggtgact 5100  
ctcagtacaa tctgctctga tgccgcatag ttaagccagt atacactccg ctatcgctac 5160  
gtgactgggt catggctgcg ccccgacacc cgccaacacc cgctgacgcg ccctgacggg 5220  
cttgtctgct cccggcatcc gcttacagac aagctgtgac cgtctccggg agctgcatgt 5280  
gtcagagggt ttcaccgtca tcaccgaaac gcgcgaggca gctgcggtaa agctcatcag 5340  
cgtggctcgtg aagcgattca cagatgtctg cctgttcac cgcgtccagc tcgttgagtt 5400  
tctccagaag cgttaatgtc tggcttctga taaagcgggc catgttaagg gcggtttttt 5460  
cctgtttggt cactgatgcc tccgtgtaag ggggatttct gttcatgggg gtaatgatac 5520  
cgatgaaacg agagaggatg ctcacgatac gggttactga tgatgaacat gcccggttac 5580  
tggaacgttg tgagggtaaa caactggcgg tatggatgcg gcgggaccag agaaaaatca 5640  
ctcaggggtca atgccagcgc ttcgttaata cagatgtagg tgttccacag ggtagccagc 5700  
agcatcctgc gatgcagatc cggaacataa tgggtgcaggg cgctgacttc cgcgtttcca 5760  
gactttacga aacacggaaa ccgaagacca ttcattgttg tgctcaggtc gcagacgttt 5820  
tgcagcagca gtcgcttcac gttcgctcgc gtatcgggtga ttcattctgc taaccagtaa 5880  
ggcaaccccg ccagcctagc cgggtcctca acgacaggag cagcatcatg cgcacccgtg 5940  
gccaggaccc aacgctgcc gagatgcgcc gcgtgcggct gctggagatg gcggacgcga 6000  
tggatatgtt ctgccaaggg ttggtttgcg cattcacagt tctccgcaag aattgattgg 6060  
ctccaattct tggagtgtg aatccgttag cgagggtgcc cgggttcca ttcaggtcga 6120  
gggtggcccg ctccatgcac cgcgacgcaa cgcggggagg cagacaaggt atagggcggc 6180  
gcctacaatc catgccaacc cgttccatgt gctcgccgag gcggcataaa tcgccgtgac 6240  
gatcagcggc ccagtgatcg aagttaggct ggtaagagcc gcgagcgatc cttgaagctg 6300  
tccctgatgg tcgtcatcta cctgcctgga cagcatggcc tgcaacgcgg gcatcccgat 6360  
gccgccggaa gcgagaagaa tcataatggg gaaggccatc cagcctcgcg tcgcgaacgc 6420  
cagcaagacg tagcccagcg cgtcggccgc catgccggcg ataattggct gcttctcgcc 6480  
gaaacgtttg gtggcgggac cagtgcgaa ggcttgagcg agggcgtgca agattccgaa 6540  
taccgcaagc gacaggccga tcatcgctgc gctccagcga aagcggctct cgcgaaaat 6600  
gacccagagc gctgccggca cctgtcctac gagttgcatg ataaagaaga cagtcataag 6660  
tgccggcgac atagtcatgc cccgcgcca ccggaaggag ctgactgggt tgaaggctct 6720  
caagggcatc ggtcgatcga cgctctcct tatgcgactc ctgcattagg aagcagccca 6780  
gtagtaggtt gaggccgttg agcaccgcc cgcgaaggaa tgggtgcatg aaggagatgg 6840  
cgcccaacag tccccggcc acggggcctg ccaccatacc cagccgaaa caagcgctca 6900

B1

tgagcccgaa gtggcgagcc cgatcttccc catcgggtgat gtcggcgata taggcgccag 6960  
caaccgcacc tgtggcgccg gtgatgccgg ccacgatgcg tccggcgtag agg 7013

<210> 144

<211> 6675

<212> DNA

<213> pDEST16

<220>

<221> gene

<222> (104)..(457)

<223> trxA

<220>

<221> gene

<222> (461)..(585)

<223> attR1

<220>

<221> gene

<222> (694)..(1353)

<223> CmR

<220>

<221> gene

<222> (1473)..(1557)

<223> inactivated ccdA

<220>

<221> gene

<222> (1695)..(2000)

<223> ccdB

<220>

<221> gene

<222> (2041)..(2165)

<223> attR2

<400> 144

BI  
agatctcgat cccgcgaaat taatacgact cactataggg agaccacaac ggtttccttc 60  
tagaaataat tttgtttaac ttttaagaagg agatatacat atgagcgata aaattattca 120  
cctgactgac gacagttttg acacggatgt actcaaagcg gacggggcga tcctcgtcga 180  
tttctgggca gagtgggtcg gtccgtgcaa aatgatcgcc ccgattctgg atgaaatcgc 240  
tgacgaatat cagggcaaac tgaccgttgc aaaactgaac atcgatcaaa accctggcac 300  
tgcgccgaaa tatggcatcc gtggtatccc gactctgctg ctgttcaaaa acggtgaagt 360  
ggcggcaacc aaagtgggtg cactgtctaa aggtcagttg aaagagttcc tcgacgctaa 420  
cctggccggt tctggttctg gtgatgacga tgacaagatc acaagtttgt acaaaaaagc 480  
tgaacgagaa acgtaaaatg atataaatat caatatatta aattagattt tgcataaaaa 540  
acagactaca taatactgta aaacacaaca tatccagtca ctatggcggc cgcattaggc 600  
accccgaggt ttacacttta tgcttcgggc tcgtataatg tgtggatttt gagttaggat 660  
ccggcgagat tttcaggagc taaggaagct aaaatggaga aaaaaatcac tggatatacc 720  
accgttgata tatcccaatg gcatcgtaaa gaacattttg aggcaattca gtcagttgct 780  
caatgtacct ataaccagac cgttcagctg gatattacgg cctttttaaa gaccgtaaag 840  
aaaaataagc acaagtttta tccggccttt attcacattc ttgcccgcct gatgaatgct 900  
catccggaat tccgtatggc aatgaaagac ggtgagctgg tgatatggga tagtgttcac 960  
ccttgttaca ccgttttcca tgagcaaact gaaacgtttt catcgctctg gagtgaatac 1020  
cacgacgatt tccggcagtt tctacacata tattcgcaag atgtggcgtg ttacggtgaa 1080  
aacctggcct atttccttaa agggtttatt gagaatatgt ttttcgtctc agccaatccc 1140  
tggttgagtt tcaccagttt tgatttaaac gtggccaata tggacaactt cttcgcccc 1200  
gttttcacca tgggcaaata ttatacgcaa ggcgacaagg tgctgatgcc gctggcgatt 1260  
caggttcac atgccgtctg tgatggcttc catgtcggca gaatgcttaa tgaattacaa 1320  
cagtactgcg atgagtggca gggcggggcg taaacgcgtg gatccggctt actaaaagcc 1380  
agataacagt atgcgtattt gcgcgctgat ttttgcggtg taagaatata tactgatatg 1440  
tatacccgaa gtatgtcaaa aagaggtgtg ctatgaagca gcgtattaca gtgacagttg 1500

acagcgacag ctatcagttg ctcaaggcat atatgatgtc aatatctccg gtctggtaag	1560
cacaaccatg cagaatgaag cccgtcgtct gcgtgccgaa cgctggaaag cggaaaatca	1620
ggaagggatg gctgaggtcg cccggtttat tgaaatgaac ggctcttttg ctgacgagaa	1680
cagggactgg tgaaatgcag ttttaaggttt acacctataa aagagagagc cgttatcgtc	1740
tgtttgtgga tgtacagagt gatattattg acacgcccgg gcgacggatg gtgatccccc	1800
tggccagtgc acgtctgctg tcagataaag tctcccgatga actttacccg gtgggtgcata	1860
tcggggatga aagctggcgc atgatgacca ccgatatggc cagtgtgccg gtctccgtta	1920
tcggggaaga agtggctgat ctacagccacc gcgaaaatga catcaaaaac gccattaacc	1980
tgatgttctg gggaatataa atgtcaggct cccttataca cagccagtct gcaggtcgac	2040
catagtgact ggatatgttg tgttttacag taattatgtag tctgtttttt atgcaaaatc	2100
taatttaata tattgatatt tatatcattt taagtctctc gttcagcttt cttgtacaaa	2160
gtggtgatga tccggctgct aacaaagccc gaaaggaagc tgagttggct gctgccaccg	2220
ctgagcaata actagcataa ccccttgggg cctctaaacg ggtcttgagg ggttttttgc	2280
tgaaaggagg aactatatcc ggatatccac aggacgggtg tggtcgccat gatcgcgtag	2340
tcgatagtgg ctccaagtag cgaagcgagc aggactgggc ggcggccaaa gcggtcggac	2400
agtgtccga gaacgggtgc gcatagaaat tgcataacg catatagcgc tagcagcacg	2460
ccatagtgac tggcgatgct gtcggaatgg acgatatccc gcaagaggcc cggcagtacc	2520
ggcataacca agcctatgcc tacagcatcc agggtgacgg tgccgaggat gacgatgagc	2580
gcattgttag atttcataca cggtgccctga ctgcgcttagc aatttaactg tgataaacta	2640
ccgcattaaa gcttatcgat gataagctgt caaacatgag aattcttgaa gacgaaaggg	2700
cctcgtgata cgcctatttt tataggttaa tgtcatgata ataatggttt cttagacgtc	2760
aggtggcact tttcggggaa atgtgcgcgg aacccctatt tgtttatttt tctaaataca	2820
ttcaaatatg tatccgctca tgagacaata accctgataa atgcttcaat aatattgaaa	2880
aaggaagagt atgagtattc aacatttccg tgtgcgccctt attccctttt ttgcggcatt	2940
ttgccttctt gtttttgctc acccagaaac gctggtgaaa gtaaaagatg ctgaagatca	3000
gttgggtgca cgagtgggtt acatcgaact ggatctcaac agcggtaaga tccttgagag	3060
ttttcgcccc gaagaacgtt ttccaatgat gagcactttt aaagttctgc tatgtggcgc	3120
ggtattatcc cgtgttgacg ccgggcaaga gcaactcggc cgccgcatac actattctca	3180
gaatgacttg gttgagtact caccagtcac agaaaagcat cttacggatg gcatgacagt	3240
aagagaatta tgcagtgtcg ccataaccat gagtgataac actgcggcca acttacttct	3300
gacaacgatc ggaggaccga aggagctaac cgcttttttg cacaacatgg gggatcatgt	3360

aactcgcctt gatcgttggg aaccggagct gaatgaagcc ataccaaacg acgagcgtga 3420  
caccacgatg cctgcagcaa tggcaacaac gttgcgcaaa ctattaactg gcgaactact 3480  
tactctagct tccccgcaac aattaataga ctggatggag gcggataaag ttgcaggacc 3540  
acttctgcgc tgggcccttc cggctggctg gtttattgct gataaatctg gagccgggtga 3600  
gcgtgggtct cgcggtatca ttgcagcact ggggccagat ggtaagccct cccgtatcgt 3660  
agttatctac acgacgggga gtcaggcaac tatggatgaa cgaaatagac agatcgtctga 3720  
gatagggtgcc tcaactgatta agcattggta actgtcagac caagtttact catatatact 3780  
ttagattgat ttaaaacttc atttttaatt taaaaggatc taggtgaaga tcctttttga 3840  
taatctcatg accaaaatcc cttaacgtga gttttcgttc cactgagcgt cagaccccg 3900  
agaaaagatc aaaggatctt cttgagatcc tttttttctg cgcgtaatct gctgcttgca 3960  
aacaacaaaaa ccaccgctac cagcgggtgg ttgtttgccg gatcaagagc taccaactct 4020  
ttttccgaag gtaactggct tcagcagagc gcagatacca aatactgtcc ttctagtgtga 4080  
gccgtagtta ggccaccact tcaagaactc tgtagcaccg cctacatacc tcgctctgct 4140  
aatcctgtta ccagtggctg ctgccagtgg cgataagtcg tgtcttaccg ggttggactc 4200  
aagacgatag ttaccggata aggcgcagcg gtcgggctga acgggggggt cgtgcacaca 4260  
gcccagcttg gagcgaacga cctacaccga actgagatac ctacagcgtg agctatgaga 4320  
aagcgccacg cttcccgaag ggagaaaggc ggacaggtat ccggtaaagc gcagggtcgg 4380  
aacaggagag cgcacgaggg agcttccagg gggaaacgcc tggtatcttt atagtccctgt 4440  
cgggttttcgc cacctctgac ttgagcgtcg atttttgtga tgctcgtcag gggggcgag 4500  
cctatggaaa aacgccagca acgcggcctt tttacggttc ctggcctttt gctggccttt 4560  
tgctcacatg ttctttcttg cgttatcccc tgattctgtg gataaccgta ttaccgcctt 4620  
tgagtgagct gataccgctc gccgcagccg aacgaccgag cgcagcaggt cagtgagcga 4680  
ggaagcggaa gagcgctga tgcggtatct tctccttacg catctgtgcg gtatttcaca 4740  
ccgcatatat ggtgcactct cagtacaatc tgctctgatg ccgcatagtt aagccagtat 4800  
aactccgct atcgctacgt gactgggtca tggctgcgcc ccgacacccg ccaacacccg 4860  
ctgacgcgcc ctgacgggct tgtctgctcc cggcatccgc ttacagacaa gctgtgaccg 4920  
tctccgggag ctgcatgtgt cagaggtttt caccgtcacc accgaaacgc gcgaggcagc 4980  
tgcggtaaag ctcatcagcg tggctcgtgaa gcgattcaca gatgtctgcc tgttcatccg 5040  
cgtccagctc gttgagtttc tccagaagcg ttaatgtctg gcttctgata aagcggggcca 5100  
tgtaaagggc ggttttttcc tgtttggtca ctgatgcctc cgtgtaaggg ggatttctgt 5160  
tcatgggggt aatgataccg atgaaacgag agaggatgct cagcataccg gttactgatg 5220

B1

atgaacatgc ccggttactg gaacgttgtg agggtaaaca actggcggta tggatgcggc 5280  
gggaccagag aaaaatcact cagggtcact gccagcgctt cgttaataca gatgtaggtg 5340  
ttccacaggg tagccagcag catcctgcga tgcagatccg gaacataatg gtgcagggcg 5400  
ctgacttccg cgtttccaga ctttacgaaa cacggaaacc gaagaccatt catgttggtg 5460  
ctcaggtcgc agacgttttg cagcagcagt cgcttcacgt tcgctcgcgt atcggtgatt 5520  
cattctgcta accagtaagg caaccccgcc agcctagccg ggtcctcaac gacaggagca 5580  
cgatcatgcg caccgctggc caggacccaa cgctgccga gatgcgccg gtgcggctgc 5640  
tggagatggc ggacgcgatg gatatgttct gccaaaggtt ggtttgcgca ttcacagttc 5700  
tccgcaagaa ttgattggct ccaattcttg gagtggtgaa tccgttagcg aggtgccgcc 5760  
ggcttccatt caggtcgagg tggcccggt ccatgcaccg cgacgcaacg cggggaggca 5820  
gacaaggtat agggcggcgc ctacaatcca tgccaacccg ttccatgtgc tcgccgaggc 5880  
ggcataaatc gccgtgacga tcagcgggcc agtgatcgaa gttaggctgg taagagccgc 5940  
gagcgatcct tgaagctgtc cctgatggtc gtcactacc tgccctggaca gcatggcctg 6000  
caacgcgggc atcccgatgc cgccggaagc gagaagaatc ataatgggga aggccatcca 6060  
gcctcgcgtc gcgaacgcca gcaagacgta gccagcgcg tcggccgcca tgccggcgat 6120  
aatggcctgc ttctcgccga aacgtttggt ggccgggacca gtgacgaagg cttgagcgag 6180  
ggcgtgcaag attccgaata ccgcaagcga caggccgatc atcgtcgcgc tccagcgaaa 6240  
gcggtcctcg ccgaaaatga ccagagcgc tgccggcacc tgtcctacga gttgcatgat 6300  
aaagaagaca gtcataagtg cggcgacgat agtcatgcc cgcgccacc ggaaggagct 6360  
gactgggttg aaggctctca agggcatcgg tcgatcgacg ctctccctta tgcgactcct 6420  
gcattaggaa gcagcccagt agtaggttga ggccgttgag caccgccgcc gcaaggaatg 6480  
gtgcatgcaa ggagatggcg cccaacagtc ccccgccac ggggcctgcc accataacca 6540  
cgccgaaaca agcgctcatg agcccgaagt ggcgagccc atcttcccca tcggtgatgt 6600  
cggcgatata ggccgagca accgcacctg tggcgccggg gatgccggcc acgatgcgtc 6660  
cggcgtagag gatcg 6675

<210> 145

<211> 6354

<212> DNA

<213> pDEST17

<220>

<221> gene  
<222> (134)..(258)  
<223> attR1

<220>  
<221> gene  
<222> (367)..(1026)  
<223> CmR

<220>  
<221> gene  
<222> (1146)..(1230)  
<223> inactivated ccdA

B1  
<220>  
<221> gene  
<222> (1368)..(1673)  
<223> ccdB

<220>  
<221> gene  
<222> (1714)..(1838)  
<223> attR2

<220>  
<221> gene  
<222> (2564)..(3421)  
<223> ampR

<400> 145  
cgatcccgcg aaattaatac gactcactat agggagacca caacggtttc cctctagaaa 60  
taattttggt taactttaag aaggagatat acatatgtcg tactaccatc accatcacca 120



tcacctcgaa tcaacaagtt tgtacaaaaa agctgaacga gaaacgtaaa atgatataaa 180  
tatcaatata ttaaattaga ttttgcataa aaaacagact acataatact gtaaaacaca 240  
acatatccag tcactatggc ggccgcatta ggcaccccg gctttacact ttatgcttec 300  
ggctcgtata atgtgtggat tttgagttag gatccgtcga gattttcagg agctaaggaa 360  
gctaaaatgg agaaaaaaat cactggatat accaccgttg atatatccca atggcatcgt 420  
aaagaacatt ttgaggcatt tcagtcagtt gctcaatgta cctataacca gaccgttcag 480  
ctggatatta cggccttttt aaagaccgta aagaaaaata agcacaagtt ttatccggcc 540  
tttattcaca ttcttgcccg cctgatgaat gctcatccgg aattccgtat ggcaatgaaa 600  
gacggtgagc tggatgatag ggatagtgtt cacccttgtt acaccgtttt ccatgagcaa 660  
actgaaacgt tttcatcgct ctggagtga taccacgacg atttccggca gtttctacac 720  
atatattcgc aagatgtggc gtgttacggc gaaaacctgg cctatttccc taaagggttt 780  
attgagaata tgtttttcgt ctcagccaat ccctgggtga gtttcaccag ttttgattta 840  
aacgtggcca atatggacaa cttcttcgcc cccgttttca ccatgggcaa atattatacg 900  
caaggcgaca aggtgctgat gccgctggcg attcaggttc atcatgccgt ctgtgatggc 960  
ttccatgtcg gcagaatgct taatgaatta caacagtact gcgatgagtg gcagggcggg 1020  
gcgtaaagat ctggatccgg cttactaaaa gccagataac agtatgcgta tttgcgcgt 1080  
gatttttgcg gtataagaat atatactgat atgtataccc gaagtatgtc aaaaagaggt 1140  
gtgctatgaa gcagcgtatt acagtacag ttgacagcga cagctatcag ttgctcaagg 1200  
catatatgat gtcaatatct ccggtctggc aagcacaacc atgcagaatg aagcccgctg 1260  
tctgcgtgcc gaacgctgga aagcggaaaa tcaggaaggg atggctgagg tcgcccgggt 1320  
tattgaaatg aacggctctt ttgctgacga gaacaggac tggtgaaatg cagtttaagg 1380  
tttacaccta taaaagagag agccgttatc gtctgtttgt ggatgtacag agtgatatta 1440  
ttgacacgcc cgggcgacgg atgggtgatcc ccctggccag tgcacgtctg ctgtcagata 1500  
aagtctcccg tgaactttac ccggtggtgc atatcgggga tgaaagctgg cgcgatgatg 1560  
ccaccgatat ggccagtgtg ccggtctccg ttatcgggga agaagtggct gatctcagcc 1620  
accgcgaaaa tgacatcaaa aacgccatta acctgatgtt ctggggaata taaatgtcag 1680  
gtcccttat acacagccag tctgcaggct gaccatagtg actggatatg ttgtgtttta 1740  
cagtattatg tagtctgttt tttatgcaaa atctaattta atatattgat atttatatca 1800  
ttttacgttt ctcgttcagc tttctgtac aaagtgggtg attcgaggct gctaacaaag 1860  
cccgaagga agctgagttg gctgctgcc cgcgtgagca ataactagca taacccttg 1920  
gggcctctaa acgggtcttg aggggttttt tgctgaaagg aggaactata tccggatatc 1980

B1

cacaggacgg	gtgtggtcgc	catgatcgcg	tagtcgatag	tggctccaag	tagcgaagcg	2040
agcaggactg	ggcggcggcc	aaagcggtcg	gacagtgtct	cgagaacggg	tgcgcataga	2100
aattgcatca	acgcatatag	cgctagcagc	acgccatagt	gactggcgat	gctgtcggaa	2160
tggacgatat	cccgaagag	gcccggcagt	accggcataa	ccaagcctat	gcctacagca	2220
tccaggggtg	cggtgccgag	gatgacgatg	agcgcattgt	tagatttcat	acacgggtgcc	2280
tgactgcgtt	agcaatttaa	ctgtgataaa	ctaccgcatt	aaagcttatt	gatgataagc	2340
tgtcaaacat	gagaattctt	gaagacgaaa	gggcctcgtg	atacgcctat	ttttataggt	2400
taatgtcatg	ataataatgg	tttcttagac	gtcaggtggc	acttttcggg	gaaatgtgcg	2460
cggaaaccct	atttgtttat	ttttctaaat	acattcaaat	atgtatccgc	tcatgagaca	2520
ataaccctga	taaatgcttc	aataatattg	aaaaaggaag	agtatgagta	ttcaacattt	2580
ccgtgtcgcc	cttattccct	tttttgccgc	attttgcctt	cctgtttttg	ctcaccagca	2640
aacgctggtg	aaagtaaaaag	atgctgaaga	tcagttgggt	gcacgagtgg	gttacatcga	2700
actggatctc	aacagcggta	agatccttga	gagttttcgc	cccgaagaac	gttttccaat	2760
gatgagcact	tttaaagttc	tgctatgtgg	cgcggtatta	tcccgtgttg	acgccgggca	2820
agagcaactc	ggtcgccgca	tacactattc	tcagaatgac	ttggttgagt	actcaccagt	2880
cacagaaaag	catcttacgg	atggcatgac	agtaagagaa	ttatgcagtg	ctgccataac	2940
catgagtgat	aacactgcgg	ccaacttact	tctgacaacg	atcggaggac	cgaaggagct	3000
aaccgctttt	ttgcacaaca	tgggggatca	tgtaactcgc	cttgatcggt	gggaaccgga	3060
gctgaatgaa	gccataccaa	acgacgagcg	tgacaccacg	atgcctgcag	caatggcaac	3120
aacgttgccg	aaactattaa	ctggcgaact	acttactcta	gcttcccggc	aacaattaat	3180
agactggatg	gaggcggata	aagttgcagg	accacttctg	cgctcggccc	ttccggctgg	3240
ctggtttatt	gctgataaat	ctggagccgg	tgagcggtgg	tctcgcggtg	tcattgcagc	3300
actggggcca	gatggtaagc	cctcccgtat	cgtagttatc	tacacgacgg	ggagtcaggc	3360
aactatggat	gaacgaaata	gacagatcgc	tgagataggt	gcctcactga	ttaagcattg	3420
gtaactgtca	gaccaagttt	actcatatat	acttttagatt	gatttataaac	ttcattttta	3480
atttataaag	atctaggtga	agatcctttt	tgataatctc	atgacaaaaa	ttccttaacg	3540
tgagttttcg	ttccactgag	cgtcagaccc	cgtagaaaag	atcaaaggat	cttcttgaga	3600
tccttttttt	ctgcgcgtaa	tctgctgctt	gcaaacaaaa	aaaccaccgc	taccagcggg	3660
ggtttggttg	ccggatcaag	agctaccaac	tctttttccg	aaggtaactg	gcttcagcag	3720
agcgcagata	ccaaataactg	tccttctagt	gtagccgtag	ttaggccacc	acttcaagaa	3780
ctctgtagca	ccgcctacat	acctcgctct	gctaatacctg	ttaccagtgg	ctgctgccag	3840

tggcgataag tcgtgtctta ccgggttggg ctcaagacga tagttaccgg ataaggcgca 3900  
gcggtcgggc tgaacggggg gttcgtgcac acagcccagc ttggagcgaa cgacctacac 3960  
cgaactgaga tacctacagc gtgagctatg agaaagcgcc acgcttcccg aaggagagaaa 4020  
ggcggacagg tatccggtaa gcggcagggg cggaacagga gagcgcacga gggagcttcc 4080  
agggggaaac gcctgggtatc tttatagtcg tgcggggttt cgccacctct gacttgagcg 4140  
tcgatttttg tgatgctcgt cagggggggc gagcctatgg aaaaacgcca gcaacgcggc 4200  
ctttttacgg ttcctggcct tttgctggcc ttttgctcac atgttctttc ctgcgttata 4260  
ccctgattct gtggataacc gtattaccgc ctttgagtga gctgataccg ctgcgcgcag 4320  
ccgaacgacc gagcgacagc agtcagtgag cgaggaagcg gaagagcgcc tgatgcggta 4380  
ttttctcctt acgcatctgt gcggtatttc acaccgcata tatggtgcac tctcagtaca 4440  
atctgctctg atgccgcata gttaagccag tatacactcc gctatcgcta cgtgactggg 4500  
tcatggctgc gccccgacac ccgccaacac ccgctgacgc gccctgacgg gcttgtctgc 4560  
tcccggcatc cgcttacaga caagctgtga ccgtctccgg gagctgcatg tgtcagaggt 4620  
tttcaccgtc atcacgaaa cgcgcgaggg agctgcggta aagctcatca gcgtggctgt 4680  
gaagcgattc acagatgtct gcctgttcat ccgcgtccag ctcgttgagt ttctccagaa 4740  
gcgttaatgt ctggcttctg ataaagcggg ccattgttaag ggcggttttt tctgttttg 4800  
tcaactgatc ctccgtgtaa gggggatttc tgttcatggg ggtaatgata ccgatgaaac 4860  
gagagaggat gctcacgata cgggttactg atgatgaaca tgcccggta ctggaacgtt 4920  
gtgagggtaa acaactggcg gtatggatgc ggccgggacca gagaaaaatc actcagggtc 4980  
aatgccagcg cttcgttaat acagatgtag gtgttccaca gggtagccag cagcatcctg 5040  
cgatgcagat ccggaacata atggtgcagg gcgctgactt ccgcgtttcc agactttacg 5100  
aaacacggaa accgaagacc attcatgttg ttgctcaggt cgcagacgtt ttgcagcagc 5160  
agtcgcttca cgttcgctcg cgtatcgggtg attcattctg ctaaccagta aggcaacccc 5220  
gccagcctag ccgggtcctc aacgacagga gcacgatcat gcgcacccgt ggccaggacc 5280  
caacgctgcc cgagatgcgc cgcgtgcggc tgctggagat ggccggacgc atggatatgt 5340  
tctgccaagg gttggtttgc gcattcacag ttctccgcaa gaattgattg gctccaattc 5400  
ttggagtggg gaatccgtta gcgaggtgcc gccggcttcc attcaggtcg aggtggcccg 5460  
gctccatgca ccgcgacgca acgcggggag gcagacaagg tataggggcg cgctacaat 5520  
ccatgccaac ccgttccatg tgctcgccga ggccggcataa atcgccgtga cgatcagcgg 5580  
tccagtgatc gaagttaggc tggtaagagc cgcgagcgat ccttgaagct gtccctgatg 5640  
gtcgtcatct acctgcctgg acagcatggc ctgcaacgcg ggcatcccga tgccgcccga 5700

B1

```

agcgagaaga atcataatgg ggaaggccat ccagcctcgc gtcgcgaacg ccagcaagac 5760
gtagcccagc gcgtcgcccg ccatgccggc gataatggcc tgcttctcgc cgaaacgttt 5820
ggtggcgggg ccagtgcgga aggccttgagc gagggcgctg aagattccga ataccgcaag 5880
cgacaggccg atcatcgteg cgctccagcg aaagcgggtcc tcgccgaaaa tgaccagag 5940
cgctgccggc acctgtccta cgagttgcat gataaagaag acagtcataa gtgcggcgac 6000
gatagtcatg ccccgcgccc accggaagga gctgactggg ttgaaggctc tcaagggcat 6060
cggtcgatcg acgctctccc ttatgcgact cctgcattag gaagcagccc agtagtaggt 6120
tgaggccgtt gagcaccgcc gccgcaagga atggtgcatg caaggagatg gcgccaaca 6180
gtcccccggc cacggggcct gccaccatac ccacgccgaa acaagcgctc atgagccga 6240
agtggcgagc ccgatcttcc ccatcggtga tgtcggcgat ataggcgcca gcaaccgcac 6300
ctgtggcgcc ggtgatgccg gccacgatgc gtccggcgta gaggatcgag atct 6354

```

<210> 146

<211> 6613

<212> DNA

<213> pDEST18

<220>

<221> gene

<222> (474) .. (1449)

<223> ampR

<220>

<221> gene

<222> (1590) .. (2244)

<223> ori

<220>

<221> gene

<222> (2738) .. (3850)

<223> genR

<220>

<221> gene

<222> (4127) .. (4251)

<223> attR1

<220>

<221> gene

<222> (4501) .. (5160)

<223> CmR

<220>

<221> gene

<222> (5280) .. (5364)

<223> inactivated ccdA

<220>

<221> gene

<222> (5502) .. (5807)

<223> ccdB

<220>

<221> gene

<222> (5848) .. (5972)

<223> attR2

<220>

<221> gene

<222> (25) .. (6595)

<223> lacZ

<400> 146

gacgcgcacct gtagcggcgc attaacgcgc gcgggtgtgg tggttacgcg cagcgtgacc

60

B1

gctacacttg	ccagcgcct	agcgcccgct	cctttcgctt	tcttcccttc	ctttctcgcc	120
acgttcgccc	gctttccccg	tcaagctcta	aatcgggggc	tccctttagg	gttccgattt	180
agtgccttac	ggcacctcga	ccccaaaaa	cttgattagg	gtgatgggtc	acgtagtggg	240
ccatcgccct	gatagacggt	ttttcgccct	ttgacgttgg	agtccacgtt	ctttaatagt	300
ggactcttgt	tccaaactgg	aacaacactc	aaccctatct	cggctctatc	ttttgattta	360
taagggattt	tgccgatttc	ggcctattgg	ttaaaaaatg	agctgattta	acaaaaattt	420
aacgcgaatt	ttaacaaaat	attaacgttt	acaatttcag	gtggcacttt	tcggggaaat	480
gtgcgcggaa	cccctatttg	tttatttttc	taaatacatt	caaatatgta	tccgctcatg	540
agacaataac	cctgataaat	gcttcaataa	tattgaaaaa	ggaagagtat	gagtattcaa	600
catttccgtg	tcgcccttat	tccctttttt	gcggcatttt	gccttccctg	ttttgctcac	660
ccagaaacgc	tggtgaaagt	aaaagatgct	gaagatcagt	tgggtgcacg	agtgggttac	720
atcgaactgg	atctcaacag	cggtaagatc	cttgagagtt	ttcgccccga	agaacgtttt	780
ccaatgatga	gcacttttaa	agttctgcta	tgtggcgcg	tattatcccg	tattgacgcc	840
gggcaagagc	aactcggtcg	cgcatacac	tattctcaga	atgacttgg	tgagtactca	900
ccagtcacag	aaaagcatct	tacggatggc	atgacagtaa	gagaattatg	cagtgtcgcc	960
ataaccatga	gtgataaac	tgccggccaa	ttacttctga	caacgatcgg	aggaccgaag	1020
gagctaaccg	cttttttgca	caacatgggg	gatcatgtaa	ctcgccctga	tcgttgggaa	1080
ccggagctga	atgaagccat	accaaacgac	gagcgtgaca	ccacgatgcc	tgtagcaatg	1140
gcaacaacgt	tgcgcaaact	attaactggc	gaactactta	ctctagcttc	ccggcaacaa	1200
ttaatagact	ggatggaggc	ggataaagtt	gcaggaccac	ttctgcgctc	ggcccttccg	1260
gctggctgg	ttattgctga	taaatctgga	gccggtgagc	gtgggtctcg	cggtatcatt	1320
gcagcactgg	ggccagatgg	taagccctcc	cgtatcgtag	ttatctacac	gacggggagt	1380
caggcaacta	tggatgaacg	aaatagacag	atcgctgaga	taggtgcctc	actgattaag	1440
cattggtaac	tgtcagacca	agtttactca	tatatacttt	agattgattt	aaaacttcat	1500
ttttaattta	aaaggatcta	ggtgaagatc	cttttttgata	atctcatgac	caaaatccct	1560
taacgtgagt	tttcgttcca	ctgagcgta	gaccccgtag	aaaagatcaa	aggatcttct	1620
tgagatcctt	tttttctg	cgtaatctgc	tgcttgcaaa	caaaaaaacc	accgctacca	1680
gcggtggttt	gtttgccgga	tcaagagcta	ccaactcttt	ttccgaaggt	aactggcttc	1740
agcagagcgc	agataccaaa	tactgtcctt	ctagtgtagc	cgtagttagg	ccaccacttc	1800
aagaactctg	tagcaccgcc	tacatacctc	gctctgctaa	tcctgttacc	agtggctgct	1860
gccagtggcg	ataagtcgtg	tcttaccggg	ttggactcaa	gacgatagtt	accggataag	1920

gcgcagcggg	cgggctgaac	gggggggttcg	tgcacacagc	ccagcttgga	gcgaacgacc	1980
tacaccgaac	tgagatacct	acagcgtgag	cattgagaaa	gcgccacgct	tcccgaaggg	2040
agaaaggcgg	acaggtatcc	ggtaagcggc	agggtcggaa	caggagagcg	cacgagggag	2100
cttccagggg	gaaacgcctg	gtatctttat	agtcctgtcg	ggtttcgcca	cctctgactt	2160
gagcgtcgat	ttttgtgatg	ctcgtcaggg	gggcggagcc	tatggaaaaa	cgccagcaac	2220
gcggcctttt	tacggttcct	ggccttttgc	tggccttttg	ctcacatgtt	ctttcctgcg	2280
ttatccccctg	attctgtgga	taaccgtatt	accgcctttg	agtgagctga	taccgctcgc	2340
cgcagccgaa	cgaccgagcg	cagcgagtca	gtgagcgagg	aagcgggaaga	gcgcctgatg	2400
cggatattttc	tccttacgca	tctgtgcggg	atttcacacc	gcagaccagc	cgcgtaacct	2460
ggcaaaatcg	gttacgggtg	agtaataaat	ggatgccctg	cgtaagcggg	tgtgggcgga	2520
caataaagtc	ttaaactgaa	caaaatagat	ctaaactatg	acaataaagt	cttaaactag	2580
acagaatagt	tgtaaactga	aatcagtgca	gttatgctgt	gaaaaagcat	actggacttt	2640
tgttatggct	aaagcaaact	cttcattttc	tgaagtgcaa	attgcccgtc	gtattaaaga	2700
ggggcggtgc	caagggcatg	gtaaagacta	tattcgcggc	gttgtgacaa	tttaccgaac	2760
aactccgcgg	ccgggaagcc	gatctcggct	tgaacgaatt	gttaggtggc	ggacttggg	2820
tcgatatcaa	agtgcatac	ttcttcccg	atgcccaact	ttgtatagag	agccactgcg	2880
ggatcgtcac	cgtaatctgc	ttgcacgtag	atcacataag	caccaagcgc	gttggcctca	2940
tgcttgagga	gattgatgag	cgcggtggca	atgccctgcc	tccggtgctc	gccggagact	3000
gcgagatcat	agatatagat	ctcactacgc	ggctgctcaa	acctgggcag	aacgtaagcc	3060
gcgagagcgc	caacaaccgc	ttcttggtcg	aaggcagcaa	gcgcgatgaa	tgtcttacta	3120
cggagcaagt	tcccgaggta	atcggagtcc	ggctgatgtt	gggagtaggt	ggctacgtct	3180
ccgaactcac	gaccgaaaag	atcaagagca	gcccgcgatg	atttgacttg	gtcagggccg	3240
agcctacatg	tgcaatgat	gccatactt	gagccacctt	actttgtttt	agggcgactg	3300
ccctgctgcg	taacatcggt	gctgctgcgt	aacatcggtg	ctgctccata	acatcaaaca	3360
tcgaccacg	gcgtaacgcg	cttgctgctt	ggatgcccga	ggcatagact	gtacaaaaaa	3420
acagtcataa	caagccatga	aaaccgccac	tgcgccgtta	ccaccgctgc	gttcgggtcaa	3480
ggttctggac	cagttgcgtg	agcgcatacg	ctacttgcac	tacagtttac	gaaccgaaca	3540
ggcttatgtc	aactgggttc	gtgccttcat	ccgtttccac	ggtgtgcgtc	acccggcaac	3600
cttgggcagc	agcgaagtcg	aggcatttct	gtcctggctg	gcgaacgagc	gcaaggtttc	3660
ggtctccacg	catcgctcag	cattggcggc	cttgctgttc	ttctacggca	aggtgctgtg	3720
cacggatctg	ccctggcttc	aggagatcgg	aagacctcgg	ccgtcgcggc	gcttgccggg	3780

ggtgctgacc cccgatgaag tgggttcgcat cctcggtttt ctggaaggcg agcatcgttt 3840  
 gttcgcccag gactctagct atagttctag tggttggcta cgtatcgagc aagaaaataa 3900  
 aacgccaaac gcgttggagt cttgtgtgct atttttacaa agattcagaa atacgcatca 3960  
 cttacaacaa gggggactat gaaattatgc attttgagga tgccgggacc ttttaattcaa 4020  
 cccaacacaa tatattatag ttaaataaga attatttattc aaatcatttg tatattaatt 4080  
 aaaatactat actgtaaatt acattttatt tacaatgagg atcatcacaa gtttgtacaa 4140  
 aaaagctgaa cgagaaacgt aaaatgatat aaatatcaat atattaaatt agatttttga 4200  
 taaaaaacag actacataat actgtaaaac acaacatattc cagtcactat ggccggccgct 4260  
 aagttggcag catcacccga cgcactttgc gccgaataaa tacctgtgac ggaagatcac 4320  
 ttcgcagaat aaataaatcc tgggtgtccct gttgataccg ggaagccctg ggccaacttt 4380  
 tggcgaaaat gagacgttga tcggcacgta agaggttcca actttcacca taatgaaata 4440  
 agatcactac cgggcgtatt ttttgagtta tcgagatttt caggagctaa ggaagctaaa 4500  
 atggagaaaa aaatcactgg atataccacc gttgatatat cccaatggca tcgtaaagaa 4560  
 cattttgagg catttcagtc agttgctcaa tgtacctata accagaccgt tcagctggat 4620  
 attacggcct ttttaaagac cgtaaagaaa aataagcaca agttttatcc ggcctttatt 4680  
 cacattcttg cccgcctgat gaatgctcat ccggaattcc gtatggcaat gaaagacggt 4740  
 gagctggtga tatgggatag tgttcaccct tgttacaccg ttttccatga gcaaactgaa 4800  
 acgttttcat cgctctggag tgaataccac gacgatttcc ggcagtttct acacatatat 4860  
 tcgcaagatg tggcgtgtta cggtgaaaac ctggcctatt tcctaaagg gtttattgag 4920  
 aatatgtttt tcgtctcagc caatccctgg gtgagtttca ccagttttga tttaaacgtg 4980  
 gccaatatgg acaacttctt cgcctccggt ttcaccatgg gcaaataatta tacgcaaggc 5040  
 gacaagggtgc tgatgccgct ggcgattcag gttcatcatg ccgtctgtga tggcttccat 5100  
 gtcggcagaa tgcttaatga attacaacag tactgcgatg agtggcaggg cggggcgtaa 5160  
 acgcgtggat ccggcttact aaaagccaga taacagtatg cgtatttgcg cgctgatttt 5220  
 tgcggtataa gaatatatac tgatatgtat acccgaagta tgtcaaaaag aggtgtgcta 5280  
 tgaagcagcg tattacagtg acagttgaca gcgacagcta tcagttgctc aaggcatata 5340  
 tgatgtcaat atctccggtc tggtaagcac aaccatgcag aatgaagccc gtcgtctgcg 5400  
 tgccgaacgc tggaaagcgg aaaatcagga agggatggct gaggtcgccc ggtttattga 5460  
 aatgaacggc tcttttgctg acgagaacag ggactgggtga aatgcagttt aaggtttaca 5520  
 cctataaaaag agagagccgt tatcgtctgt ttgtggatgt acagagtgat attattgaca 5580  
 cgcccgggcg acggatggtg atccccctgg ccagtgcacg tctgctgtca gataaagtct 5640

B1



```
cccgatgaact ttacccgggtg gtgcatatcg gggatgaaag ctggcgcatg atgaccaccg 5700
atatggccag tgtgccgggtc tccgttatcg gggaagaagt ggctgatctc agccaccgcg 5760
aaaatgacat caaaaacgcc attaacctga tgttctgggg aatataaatg tcaggctccc 5820
ttatacacag ccagtctgca ggtcgaccat agtgactgga tatgttgtgt ttacagtat 5880
tatgtagtct gttttttatg caaaatctaa tttaatatat tgatatattat atcattttac 5940
gtttctcggt cagctttctt gtacaaagtg gtgatagctt gtcgagaagt actagaggat 6000
cataatcagc cataccacat ttgtagaggt tttacttgct ttaaaaaacc tcccacacct 6060
ccccctgaac ctgaaacata aaatgaatgc aattgttggt gtttaacttgt ttattgcagc 6120
ttataatggt tacaaataaa gcaatagcat cacaaatttc acaaataaag catttttttc 6180
actgcattct agttgtgggt tgtccaaact catcaatgta tcttatcatg tctggatctg 6240
atcactgctt gagcctagga gatccgaacc agataagtga aatctagttc caaactattt 6300
tgtcattttt aattttcgta ttagcttacg acgctacacc cagttcccat ctattttgtc 6360
actcttccct aaataatcct taaaaactcc atttccaccc ctcccagttc ccaactattt 6420
tgtccgccc aagcggggca tttttcttcc tgttatgttt ttaatcaaac atcctgccaa 6480
ctccatgtga caaacgtca tcttcggcta ctttttctct gtcacagaat gaaaattttt 6540
ctgtcatctc ttcgttatta atgtttgtaa ttgactgaat atcaacgctt atttgcagcc 6600
tgaatggcga atg 6613
```

<210> 147

<211> 6668

<212> DNA

<213> pDEST19

<220>

<221> gene

<222> (391)..(515)

<223> attR1

<220>

<221> gene

<222> (765)..(1424)

<223> CmR

<220>

<221> gene

<222> (1544) .. (1628)

<223> inactivated ccdA

<220>

<221> gene

<222> (1766) .. (2071)

<223> ccdB

<220>

<221> gene

<222> (2112) .. (2236)

<223> attR2

<220>

<221> gene

<222> (2852) .. (2895)

<223> lacZ

<220>

<221> gene

<222> (3344) .. (4319)

<223> ampR

<220>

<221> gene

<222> (4460) .. (5114)

<223> ori

B1

<220>

<221> gene

<222> (52) .. (5608)

<223> genR

<400> 147

agtgggttcgc atcctcgggtt ttctggaagg cgagcatcgt ttgttcgccc aggactctag	60
ctatagttct agtgggttggc tacgtatatc aaatacttgt aggtgacgcc gtcattcttc	120
cattgtaacg taaatggcaa ctgttagatg aacgcgctgt caaaaaaccg gccagtttct	180
tccacaaact cgcgcacggc tgtctcgtaa acttttgcgt cgcaacaatc gcgatgacct	240
cgtggtatgg aaatTTTTTc taaaaaagtg tcgttcattgt cggcggcggg cgcgttcgcy	300
ctccggtacg cgcgacgggc acacagcagg acagccttgt ccggctcgat tatcataaac	360
aatcctgcag gcatgcaagc tcggatcatc acaagtttgt acaaaaaagc tgaacgagaa	420
acgtaaaatg atataaatat caatatatta aattagattt tgcataaaaa acagactaca	480
taatactgta aaacacaaca tatccagtca ctatggcggc cgctaagttg gcagcatcac	540
ccgacgcact ttgcgccgaa taaataacctg tgacggaaga tcacttcgca gaataaataa	600
atcctggtgt ccctgttgat accgggaagc cctgggcca cttttggcga aaatgagacg	660
ttgatcggca cgtaagaggt tccaactttc accataatga aataagatca ctaccgggcy	720
tattttttga gttatcgaga ttttcaggag ctaaggaagc taaaatggag aaaaaaatca	780
ctggatatac caccgttgat atatcccaat ggcatcgtaa agaacatttt gaggcatttc	840
agtcagttgc tcaatgtacc tataaccaga ccgttcagct ggatattacg gccttttttaa	900
agaccgtaaa gaaaaataag cacaagtttt atccggcctt tattcacatt cttgcccgcc	960
tgatgaatgc tcatccggaa ttccgtatgg caatgaaaga cggtgagctg gtgatatggg	1020
atagtgttca cccttgttac accgtttttc atgagcaaac tgaaacgttt tcatcgctct	1080
ggagtgaata ccacgacgat ttccggcagt ttctacacat atattcgcaa gatgtggcgt	1140
gttacggtga aaacctggcc tatttcccta aagggtttat tgagaatatg tttttcgtct	1200
cagccaatcc ctgggtgagt ttaccagtt ttgatttaaa cgtggccaat atggacaact	1260
tcttcgcccc cgttttcacc atgggcaaat attatacgca aggcgacaag gtgctgatgc	1320
cgctggcgat tcaggttcat catgccgtct gtgatggctt ccatgtcggc agaatgctta	1380
atgaattaca acagtactgc gatgagtggc agggcggggc gtaaacgcgt ggatccggct	1440
tactaaaagc cagataacag tatgcgtatt tgccgctga tttttgcggt ataagaatat	1500
atactgatat gtataccga agtatgtcaa aaagaggtgt gctatgaagc agcgtattac	1560

agtgacagtt	gacagcgaca	gctatcagtt	gctcaaggca	tatatgatgt	caatatctcc	1620
ggtctggtaa	gcacaacccat	gcagaatgaa	gcccgtcgtc	tgcgtgccga	acgctggaaa	1680
gcggaaaaatc	aggaagggat	ggctgaggtc	gcccggttta	ttgaaatgaa	cggctctttt	1740
gctgacgaga	acagggactg	gtgaaatgca	gtttaagggt	tacacctata	aaagagagag	1800
ccgttatcgt	ctgtttgtgg	atgtacagag	tgatattatt	gacacgcccg	ggcgacggat	1860
ggtgatcccc	ctggccagtg	cacgtctgct	gtcagataaa	gtctcccgtg	aactttaccc	1920
ggtggtgcat	atcggggatg	aaagctggcg	catgatgacc	accgatatgg	ccagtgtgcc	1980
ggtctccgtt	atcgggggaag	aagtggctga	tctcagccac	cgcgaaaaatg	acatcaaaaa	2040
cgccattaac	ctgatgttct	ggggaatata	aatgtcaggc	tcccttatac	acagccagtc	2100
tgcaggtcga	ccatagtac	tggatatgtt	gtgttttaca	gtattatgta	gtctgttttt	2160
tatgcaaaat	ctaatttaat	atattgatat	ttatatcatt	ttacgtttct	cgttcagctt	2220
tcttgtacaa	agtggatgac	gagaagtact	agaggatcat	aatcagccat	accacatttg	2280
tagagggtttt	acttgcttta	aaaaacctcc	cacacctccc	cctgaacctg	aaacataaaa	2340
tgaatgcaat	tgttgttgtt	aacttgttta	ttgcagctta	taatggttac	aaataaagca	2400
atagcatcac	aaatttcaca	aataaagcat	ttttttcact	gcattctagt	tgtggtttgt	2460
ccaaactcat	caatgtatct	tatcatgtct	ggatctgac	actgcttgag	cctaggagat	2520
ccgaaccaga	taagtgaat	ctagttccaa	actattttgt	cattttttaat	tttcgtatta	2580
gcttacgacg	ctacaccag	ttccatcta	ttttgtcact	cttccctaaa	taatccttaa	2640
aaactccatt	tccaccctc	ccagttccca	actattttgt	ccgcccacag	cggggcattt	2700
ttcttcctgt	tatgttttta	atcaaacatc	ctgccaactc	catgtgacaa	accgtcatct	2760
tgggtacttt	tttctctgtc	acagaatgaa	aatttttctg	tcatctcttc	gttattaatg	2820
tttgtaattg	actgaatata	aacgcttatt	tgcagcctga	atggcgaatg	gacgcgcctt	2880
gtagcggcgc	attaagcgcg	gcgggtgtgg	tggttacgcg	cagcgtgacc	gctacacttg	2940
ccagcgcctt	agcgcgcgct	cctttcgctt	tcttcccttc	ctttctcgcc	acgttcgccc	3000
gctttccccg	tcaagctcta	aatcgggggc	tcccttttagg	gttccgattt	agtgttttac	3060
ggcacctcga	ccccaaaaaa	cttgattagg	gtgatgggtc	acgtagtggg	ccatcgccct	3120
gatagacggt	ttttcgccct	ttgacgttgg	agtcacggtt	ctttaatagt	ggactcttgt	3180
tccaaactgg	aacaacactc	aaccctatct	cgggtctatc	ttttgattta	taagggattt	3240
tgccgatttc	ggcctattgg	ttaaaaaatg	agctgattta	acaaaaattt	aacgcgaatt	3300
ttaaacaaaat	attaacgttt	acaatttcag	gtggcacttt	tccgggaaat	gtgcgcggaa	3360
cccctatttg	tttatttttc	taaatacatt	caaatatgta	tccgctcatg	agacaataac	3420

cctgataaat	gcttcaataa	tattgaaaaa	ggaagagtat	gagtattcaa	catttccgtg	3480
tcgcccttat	tccctttttt	gcggcatttt	gccttcctgt	ttttgctcac	ccagaaacgc	3540
tgggtgaaagt	aaaagatgct	gaagatcagt	tgggtgcacg	agtgggttac	atcgaactgg	3600
atctcaacag	cggtaagatc	cttgagagtt	ttcgccccga	agaacgtttt	ccaatgatga	3660
gcacttttaa	agttctgcta	tgtggcgcg	tattatcccc	tattgacgcc	gggcaagagc	3720
aactcggctg	cgcatacac	tattctcaga	atgacttgg	tgagtactca	ccagtcacag	3780
aaaagcatct	tacggatggc	atgacagtaa	gagaattatg	cagtgctgcc	ataaccatga	3840
gtgataacac	tgcggccaac	ttactttctga	caacgatcgg	aggaccgaag	gagctaaccg	3900
cttttttgca	caacatgggg	gatcatgtaa	ctcgcccttga	tcgttgggaa	ccggagctga	3960
atgaagccat	accaaacgac	gagcgtgaca	ccacgatgcc	tgtagcaatg	gcaacaacgt	4020
tgcgcaaact	attaactggc	gaactactta	ctctagcttc	ccggcaacaa	ttaatagact	4080
ggatggaggc	ggataaagtt	gcaggaccac	ttctgcgctc	ggcccttcg	gctggctgg	4140
ttattgctga	taaatctgga	gccggtgagc	gtgggtctcg	cggatatcatt	gcagcactgg	4200
ggccagatgg	taagccctcc	cgtatcgtag	ttatctacac	gacggggagt	caggcaacta	4260
tggatgaacg	aaatagacag	atcgctgaga	taggtgcctc	actgattaag	catttggtaac	4320
tgtcagacca	agtttactca	tatatacttt	agattgat	aaaacttcat	ttttaattta	4380
aaaggatcta	ggtgaagatc	ctttttgata	atctcatgac	caaaatccct	taacgtgagt	4440
tttcgttcca	ctgagcgtca	gaccccgtag	aaaagatcaa	aggatcttct	tgagatcctt	4500
tttttctgcy	cgtaatctgc	tgtttgcaaa	caaaaaaacc	accgctacca	gcggtggttt	4560
gtttgccgga	tcaagagcta	ccaactcttt	ttccgaaggt	aactggcttc	agcagagcgc	4620
agataccaaa	tactgtcctt	ctagtgtagc	cgtagttagg	ccaccacttc	aagaactctg	4680
tagcaccgcc	tacatacctc	gctctgctaa	tcctgttacc	agtggctgct	gccagtggcg	4740
ataagtctg	tcttaccggg	ttggactcaa	gacgatagtt	accggataag	gcgcagcgg	4800
cgggctgaac	ggggggttcg	tgcacacagc	ccagcttgg	gcgaacgacc	tacaccgaac	4860
tgagatacct	acagcgtgag	cattgagaaa	gcgccacgct	tcccgaagg	agaaaggcgg	4920
acaggtatcc	ggtaagcggc	agggtcggaa	caggagagcg	cacgaggag	cttcagggg	4980
gaaacycctg	gtatctttat	agtctgtcg	ggtttcgcca	cctctgactt	gagcgtcgat	5040
ttttgtgatg	ctcgtcagg	gggcggagcc	tatggaaaaa	cgccagcaac	gcggcctttt	5100
tacggttcct	ggccttttgc	tggccttttg	ctcacatgtt	ctttcctgcy	ttatccctg	5160
attctgtgga	taaccgtatt	accgcctttg	agtgagctga	taccgctcgc	cgcagccgaa	5220
cgaccgagcg	cagcgagtca	gtgagcgagg	aagcggaaga	gcgcctgatg	cggtattttc	5280

tccttacgca tctgtgcggt atttcacacc gcagaccagc cgcgtaacct ggcaaaatcg	5340
gttacgggttg agtaataaat ggatgccctg cgtaagcggg tgtgggcgga caataaagtc	5400
ttaaactgaa caaaatagat ctaaactatg acaataaagt cttaaactag acagaatagt	5460
tgtaaactga aatcagtcca gttatgctgt gaaaaagcat actggacttt tgttatggct	5520
aaagcaaact cttcattttc tgaagtgcaa attgcccgtc gtattaaaga ggggcgtggc	5580
caagggcatg gtaaagacta tattcgcggc gttgtgacaa tttaccgaac aactccgcgg	5640
ccgggaagcc gatctcggt tgaacgaatt gttaggtggc ggtacttggg tcgatatcaa	5700
agtgcacac ttcttcccg atgcccaact ttgtatagag agccactgcg ggatcgtcac	5760
cgtaatctgc ttgcacgtag atcacataag caccaagcgc gttggcctca tgcttgagga	5820
gattgatgag cgcggtggca atgccctgcc tccggtgctc gccggagact gcgagatcat	5880
agatatagat ctactacgc ggctgctcaa acctgggcag aacgtaagcc gcgagagcgc	5940
caacaaccgc ttcttggctg aaggcagcaa gcgcgatgaa tgtcttacta cggagcaagt	6000
tcccgaggta atcggagtcc ggctgatgtt gggagtaggt ggctacgtct ccgaactcac	6060
gaccgaaaag atcaagagca gcccgcatgg atttgacttg gtcagggccg agcctacatg	6120
tgcgaaatgat gcccatactt gagccacct aacttgtttt agggcgactg ccctgctgcg	6180
taacatcggt gctgctgctt aacatcgttg ctgctccata acatcaaaca tcgaccacg	6240
gcgtaacgcg cttgctgctt ggatgcccgga ggcatagact gtacaaaaaa acagtcataa	6300
caagccatga aaaccgccac tgcgccgtta ccaccgctgc gttcggtcaa ggttctggac	6360
cagttgcgtg agcgcatacg ctacttgcat tacagtttac gaaccgaaca ggcttatgtc	6420
aactgggttc gtgccttcat ccgtttccac ggtgtgcgtc acccggaac cttgggcagc	6480
agcgaagtgc aggcatttct gtcttggtg gcgaacgagc gcaaggtttc ggtctccacg	6540
catcgtcagg cattggcggc cttgctgttc ttctacggca aggtgctgtg cacggatctg	6600
ccctggcttc aggagatcgg aagacctcgg ccgtcgcggc gcttgccggt ggtgctgacc	6660
ccggatga	6668

<210> 148

<211> 7066

<212> DNA

<213> pDEST20

<220>

<221> gene

<222> (592) .. (1263)

<223> GST

<220>

<221> gene

<222> (1273) .. (1397)

<223> attR1

<220>

<221> gene

<222> (1506) .. (2165)

<223> CmR

<220>

<221> gene

<222> (2285) .. (2369)

<223> inactivated ccdA

<220>

<221> gene

<222> (2507) .. (2812)

<223> ccdB

<220>

<221> gene

<222> (2853) .. (2977)

<223> attR2

<220>

<221> gene

<222> (4214) .. (5064)

<223> ampR

<220>

<221> gene

<222> (5263) .. (5843)

<223> ori

<400> 148

ccactgcgcc gttaccaccg ctgcgttcgg tcaaggttct ggaccagttg cgtgagcgca 60  
tacgctactt gcattacagt ttacgaaccg aacaggctta tgtcaactgg gttcgtgcct 120  
tcattccgttt ccacgggtgtg cgtcacccgg caaccttggg cagcagcgaa gtcgaggcat 180  
ttctgtcctg gctggcgaac gagcgcaagg ttctcgtctc cacgcatcgt caggcattgg 240  
cggccttggc gttcttctac ggcaagggtgc tgtgcaaggga tctgccctgg cttcaggaga 300  
tcggaagacc tcggccgctc cggcgcttgc cgggtggtgct gaccccggtat gaagtgggtc 360  
gcatcctcgg ttttctggaa ggcgagcatc gtttgttcgc ccaggactct agctatagtt 420  
ctagtgggtg gctacgtata ctccggaata ttaatagatc atggagataa ttaaaatgat 480  
aaccatctcg caaataaata agtattttac tgttttcgta acagttttgt aataaaaaaa 540  
cctataaata ttccggatta ttcataccgt cccaccatcg ggcgcggatc catggccctt 600  
atactagggtt attggaaaat taagggcctt gtgcaaccca ctcgacttct tttggaatat 660  
cttgaagaaa aatatgaaga gcatttgtat gagcgcgatg aaggtgataa atggcgaaac 720  
aaaaagtttg aattgggttt ggagtttccc aatcttcctt attatattga tggatgatgtt 780  
aaattaacac agtctatggc catcatacgt tatatagctg acaagcaca catggtgggt 840  
ggttgtccaa aagagcgtgc agagatttca atgcttgaag gagcggtttt ggatattaga 900  
tacggtgttt cgagaattgc atatagtaaa gactttgaaa ctctcaaagt tgattttctt 960  
agcaagctac ctgaaatgct gaaaatgttc gaagatcgtt tatgtcataa aacatattta 1020  
aatggtgatc atgtaacca tctgacttc atgttgtatg acgctcttga tgttgtttta 1080  
tacatggacc caatgtgcct ggatgcgttc ccaaaattag tttgttttaa aaaacgtatt 1140  
gaagctatcc cacaaattga taagtacttg aaatccagca agtatatagc atggcctttg 1200  
cagggctggc aagccacgtt tgggtgggtggc gaccatcctc caaaatcgga tctggttccg 1260  
cgtcataatc aaacaagttt gtacaaaaaa gctgaacgag aaacgtaaaa tgatataaat 1320  
atcaatatat taaattagat ttgcatataa aaacagacta cataaactg taaaacacaa 1380  
catatccagt cactatggcg gccgcattag gcaccccagg ctttacactt tatgtttccg 1440

B1



gctcgtatgt tgtgtggatt ttgagttagg atccggcgag attttcagga gctaaggaag 1500  
ctaaaatgga gaaaaaaatc actggatata ccaccgttga tatatcccaa tggcatcgta 1560  
aagaacattt tgaggcattt cagtcagttg ctcaatgtac ctataaccag accgttcagc 1620  
tggatattac ggccttttta aagaccgtaa agaaaaataa gcacaagttt tatccggcct 1680  
ttattcacat tcttgcccgc ctgatgaatg ctcatccgga attccgtatg gcaatgaaag 1740  
acggtgagct ggtgatatgg gatagtgttc acccttgtta caccgttttc catgagcaaa 1800  
ctgaaacggt ttcatcgctc tggagtgaat accacgacga tttccggcag tttctacaca 1860  
tatattcgca agatgtggcg tgttacggtg aaaacctggc ctatttcctt aaagggttta 1920  
ttgagaatat gtttttcgtc tcagccaatc cctgggtgag tttcaccagt tttgatttaa 1980  
acgtggccaa tatggacaac ttcttcgccc cgtttttcac catgggcaaa tattatacgc 2040  
aaggcgacaa ggtgctgatg ccgctggcga ttcaggttca tcatgccgtc tgtgatggct 2100  
tccatgtcgg cagaatgctt aatgaattac aacagtactg cgatgagtgg cagggcgggg 2160  
cgtaatctag aggatccggc ttactaaaag ccagataaca gtatgcgtat ttgcgcgctg 2220  
atttttgcg tataagaata tatactgata tgtatacccg aagtatgtca aaaagagggtg 2280  
tgctatgaag cagcgtatta cagtgcagc tgacagcgac agctatcagt tgctcaaggc 2340  
atatatgatg tcaatatctc cggctctggta agcacaacca tgcagaatga agcccgtcgt 2400  
ctgcgtgccg aacgctggaa agcggaaaaat caggaaggga tggctgaggt cgcccggttt 2460  
attgaaatga acggctcttt tgctgacgag aacagggact ggtgaaatgc agtttaaggt 2520  
ttacacctat aaaagagaga gccgttatcg tctgtttgtg gatgtacaga gtgatattat 2580  
tgacacgccc gggcgacgga tggatgatccc cctggccagt gcacgtctgc tgtcagataa 2640  
agtctcccgt gaactttacc cgggtggtgca tatcggggat gaaagctggc gcatgatgac 2700  
caccgatatg gccagtgtgc cggctctcgt tatcggggaa gaagtggctg atctcagcca 2760  
ccgcgaaaat gacatcaaaa acgccattaa cctgatgttc tggggaatat aaatgtcagg 2820  
ctcccttata cacagccagt ctgcaggtcg accatagtga ctggatatgt tgtgttttac 2880  
agtattatgt agtctgtttt ttatgcaaaa tctaatttaa tatattgata tttatatcat 2940  
tttacgtttc tcgttcagct ttcttgtaca aagtggtttg atagcttgtc gagaagtact 3000  
agaggatcat aatcagccat accacatttg tagaggtttt acttgcttta aaaaacctcc 3060  
cacacctccc cctgaacctg aaacataaaa tgaatgcaat tgttggtgtt aacttgttta 3120  
ttgcagctta taatggttac aaataaagca atagcatcac aaatttcaca aataaagcat 3180  
ttttttcact gcattctagt tgtgggtttgt ccaaactcat caatgtatct tatcatgtct 3240  
ggatctgatc actgcttgag cctaggagat ccgaaccaga taagtgaaat ctagttccaa 3300

B1

actatTTTTgt catttttTaat ttctgtatta gcttacgacg ctacacccag ttcccatcta 3360  
 ttttgtcact cttccctaaa taatccttaa aaactccatt tccacccctc ccagttccca 3420  
 actatTTTTgt ccgcccacag cggggcattt ttcttctgt tatgttttta atcaaacatc 3480  
 ctgccaaactc catgtgacaa accgtcatct tgggtactt tttctctgtc acagaatgaa 3540  
 aatttttctg tcatctcttc gttattaatg ttgttaattg actgaatata aacgcttatt 3600  
 tgcagcctga atggcgaaatg gacgcgcct gtagcggcgc attaagcgcg gcgggtgtgg 3660  
 tggttacgcg cagcgtgacc gctacacttg ccagcgcct agcgcgcgt ctttctgctt 3720  
 tcttcccttc ctttctgccc acgttcgccc gctttccccc tcaagctcta aatcgggggc 3780  
 tcccttttagg gttccgattt agtgctttac ggcacctga ccccaaaaaa cttgattagg 3840  
 gtgatgggtc acgtagtggg ccacgcctt gatagacggt ttttgcctt ttgacgttgg 3900  
 agtccacgtt ctttaatatg ggactcttgt tccaaactgg aacaacactc aaccctatct 3960  
 cgggtctattc ttttgattta taagggattt tgccgatttc ggcctattgg ttaaaaaatg 4020  
 agctgattta acaaaaattt aacgcgaatt ttaacaaaat attaacgttt acaatttcag 4080  
 gtggcacttt tcggggaaat gtgcgcggaa cccctatttg tttatttttc taaatacatt 4140  
 caaatatgta tccgctcatg agacaataac cctgataaat gcttcaataa tattgaaaaa 4200  
 ggaagagtat gagtattcaa catttccgtg tcgcccctat tccctttttt gcggcatttt 4260  
 gccttctgt ttttgctcac ccagaaacgc tggtgaaagt aaaagatgct gaagatcagt 4320  
 tgggtgcacg agtgggttac atcgaactgg atctcaacag cggtaagatc cttgagagtt 4380  
 ttccgccccga agaacgtttt ccaatgatga gcacttttaa agttctgcta tgtggcgcgg 4440  
 tattatcccg tattgacgcc gggcaagagc aactcgggtc ccgcatacac tattctcaga 4500  
 atgacttggt tgagtactca ccagtcacag aaaagcatct tacggatggc atgacagtaa 4560  
 gagaattatg cagtgtgcc ataaccatga gtgataaacac tgcggccaac ttacttctga 4620  
 caacgatcgg aggaccgaag gagctaaccg cttttttgca caacatgggg gatcatgtaa 4680  
 ctgccttga tcgttgggaa ccggagctga atgaagccat accaaacgac gagcgtgaca 4740  
 ccacgatgcc tgtagcaatg gcaacaacgt tgcgcaaact attaaactggc gaactactta 4800  
 ctctagcttc ccggcaacaa ttaatagact ggatggaggg ggataaagtt gcaggaccac 4860  
 ttctgcgctc ggcccttcg gctggctggg ttattgctga taaatctgga gccggtgagc 4920  
 gtgggtctcg cggtatcatt gcagcactgg ggcagatgg taagccctcc cgtatcgtag 4980  
 ttatctacac gacggggagt caggcaacta tggatgaacg aaatagacag atcgtgaga 5040  
 taggtgcctc actgattaag cattggtaac tgtcagacca agtttactca tatatacttt 5100  
 agattgattt aaaacttcat ttttaattta aaaggatcta ggtgaagatc ctttttgata 5160

B1

atctcatgac	caaaatccct	taacgtgagt	tttcggtcca	ctgagcgtca	gaccccgtag	5220
aaaagatcaa	aggatcttct	tgagatcctt	tttttctgcg	cgtaatctgc	tgcttgcaaa	5280
caaaaaaacc	accgctacca	gcggtggttt	gtttgcccga	tcaagagcta	ccaactcttt	5340
ttccgaaggt	aactggcttc	agcagagcgc	agataccaaa	tactgtcctt	ctagtgtagc	5400
cgtagttagg	ccaccacttc	aagaactctg	tagcaccgcc	tacatacctc	gctctgctaa	5460
tctgttacc	agtggctgct	gccagtggcg	ataagtcgtg	tcttaccggg	ttggactcaa	5520
gacgatagtt	accggataag	gcgcagcggg	cgggctgaac	gggggggttcg	tgcacacagc	5580
ccagcttggg	gcgaacgacc	tacaccgaac	tgagatacct	acagcgtgag	cattgagaaa	5640
gcgccacgct	tcccgaaggg	agaaaggcgg	acaggatatcc	ggtaagcggc	agggtcggaa	5700
caggagagcg	cacgaggagg	cttccagggg	gaaacgcctg	gtatctttat	agtcctgtcg	5760
ggtttcgcca	cctctgactt	gagcgtcgat	ttttgtgatg	ctcgtcaggg	gggcggagcc	5820
tatggaaaaa	cgccagcaac	gcggcctttt	tacggttcct	ggccttttgc	tggccttttg	5880
ctcacatgtt	ctttcctgcg	ttatcccctg	attctgtgga	taaccgtatt	accgcctttg	5940
agtgagctga	taccgctcgc	cgcagccgaa	cgaccgagcg	cagcgagtca	gtgagcgagg	6000
aagcgggaaga	gcgcctgatg	cggtattttc	tccttacgca	tctgtgcggg	atttcacacc	6060
gcagaccagc	cgcgtaacct	ggcaaaatcg	gttacggttg	agtaataaat	ggatgccctg	6120
cgtaagcggg	tgtgggcgga	caataaagtc	ttaaactgaa	caaaatagat	ctaaactatg	6180
acaataaagt	cttaaaactag	acagaatagt	tgtaaactga	aatcagtcca	gttatgctgt	6240
gaaaaagcat	actggacttt	tgttatggct	aaagcaaaact	cttcattttc	tgaagtgcaa	6300
attgcccgtc	gtattaaaga	ggggcgtggc	caagggcatg	gtaaagacta	tattcgcggc	6360
gttgtgacaa	tttaccgaac	aactccgcgg	cggggaagcc	gatctcggct	tgaacgaatt	6420
gttaggtggc	ggtacttggg	tcgatatcaa	agtgcacac	ttcttcccgt	atgcccaact	6480
ttgtatagag	agccactgcg	ggatcgtcac	cgtaatctgc	ttgcacgtag	atcacataag	6540
caccaagcgc	gttggcctca	tgcttgagga	gattgatgag	cgcggtggca	atgccctgcc	6600
tccggtgctc	gccggagact	gcgagatcat	agatatagat	ctcactacgc	ggctgctcaa	6660
acctgggcag	aacgtaagcc	gcgagagcgc	caacaaccgc	ttcttggtcg	aaggcagcaa	6720
gcgcgatgaa	tgtcttacta	cggagcaagt	tcccagggta	atcggagtcc	ggctgatggt	6780
gggagtaggt	ggctacgtct	ccgaactcac	gaccgaaaag	atcaagagca	gcccgcatgg	6840
atttgacttg	gtcagggccg	agcctacatg	tgcgaaatgat	gcccatactt	gagccaccta	6900
actttgtttt	agggcgactg	ccctgctgcg	taacatcggt	gctgctgctg	aacatcgttg	6960
ctgctccata	acatcaaaca	tcgacccacg	gcgtaacgcg	cttgctgctt	ggatgcccga	7020

ggcatagact gtacaaaaaa acagtcataa caagccatga aaaccg

7066

<210> 149

<211> 11713

<212> DNA

<213> pDEST21

<220>

<221> gene

<222> (857) .. (1322)

<223> GAL4DB

B1  
<220>

<221> gene

<222> (1332) .. (1456)

<223> attR1

<220>

<221> gene

<222> (1706) .. (2365)

<223> CmR

<220>

<221> gene

<222> (2485) .. (2569)

<223> inactivated ccdA

<220>

<221> gene

<222> (2707) .. (3012)

<223> ccdB

<220>

<221> gene

<222> (3053)..(3177)

<223> attR2

<220>

<221> gene

<222> (3716)..(3735)

<223> pT7 (T7 promoter)

<220>

<221> gene

<222> (3899)..(4354)

<223> f1 (f1 intergenic region)

<220>

<221> gene

<222> (4414)..(6642)

<223> Leu2

<220>

<221> gene

<222> (7541)..(8515)

<223> kanR

<220>

<221> gene

<222> (9668)..(10958)

<223> CYH2

<220>

<221> gene

<222> (848)..(11118)

<223> pADH (ADH promoter)

<400> 149

tttattatgt tacaatatgg aaggggaactt tacacttctc ctatgcacat atattaatta 60  
aagtccaatg ctagtagaga aggggggtaa caccctccg cgctcttttc cgattttttt 120  
ctaaaccgtg gaatatttcg gatatccttt tgttggttcc ggggtgtacaa tatggacttc 180  
ctctttttctg gcaaccaaac ccatacatcg ggattcctat aataccttcg ttgggtctccc 240  
taacatgtag gtggcgagg ggagatatac aatagaacag ataccagaca agacataatg 300  
ggctaaacaa gactacacca attacactgc ctcatlgatg gtggtacata acgaactaat 360  
actgtagccc tagacttgat agccatcatc atatcgaagt ttcactacc tttttccatt 420  
tgccatctat tgaagtaata ataggcgcat gcaacttctt ttcttttttt ttctttttctc 480  
tctccccgtg tgttggtctca ccatatccgc aatgacaaaa aaaatgatgg aagacactaa 540  
aggaaaaaat taacgacaaa gacagcacca acagatgtcg ttgttccaga gctgatgagg 600  
ggtatcttcg aacacacgaa acttttttct tcttccattc acgcacacta ctctctaattg 660  
agcaacggta tacggccttc cttccagtta cttgaatttg aaataaaaaa agtttgccgc 720  
tttgctatca agtataaata gacctgcaat tattaatctt ttgtttctc gtcattgttc 780  
tcgttccctt tcttcttgt ttctttttct gcacaatatt tcaagctata ccaagcatac 840  
aatcaactcc aagcttgaag caagcctct gaaagatgaa gctactgtct tctatcgaac 900  
aagcatgcga tatttgccga cttaaaaagc tcaagtgtc caaagaaaaa ccgaagtgcg 960  
ccaagtgtct gaagaacaac tgggagtgtc gctactctcc caaaaccaa aggtctccgc 1020  
tgactagggc acatctgaca gaagtggaat caaggctaga aagactggaa cagctatttc 1080  
tactgatttt tctctgagaa gaccttgaca tgattttgaa aatggattct ttacaggata 1140  
taaaagcatt gttaacagga ttatttgtag aagataatgt gaataaagat gccgtcacag 1200  
atagattggc ttcagtggag actgatatgc ctctaacatt gagacagcat agaataagtg 1260  
cgacatcatc atcgggaagag agtagtaaca aagggtcaaag acagttgact gtatcgtcga 1320  
ggtcgaatca aacaagtttg taaaaaaag ctgaacgaga aacgtaaaat gatataaata 1380  
tcaatatatt aaattagatt ttgcataaaa aacagactac ataatactgt aaaacacaac 1440  
atatccagtc actatggcgg ccgctaagtt ggcagcatca cccgacgcac tttgcgccga 1500  
ataaatacct gtgacggaag atcacttcgc agaataaata aatcctgggtg tccctgttga 1560  
taccgggaag ccctgggcca acttttggcg aaaatgagac gttgatcggc acgtaagagg 1620

ttccaacttt	caccataatg	aaataagatc	actaccgggc	gtatTTTTTg	agttatcgag	1680
atTTtcagga	gctaaggaag	ctaaaatgga	gaaaaaaatc	actggatata	ccaccgttga	1740
tatatcccaa	tggcatcgta	aagaacatTT	tgaggcattt	cagtcagttg	ctcaatgtac	1800
ctataaccag	accgttcagc	tggatattac	ggcTTTTtta	aagaccgtaa	agaaaaataa	1860
gcacaagttt	tatccggcct	ttattcacat	tcttgcccgc	ctgatgaatg	ctcatccgga	1920
attccgtatg	gcaatgaaag	acgggtgagct	ggtgatatgg	gatagtgttc	acccttgtta	1980
caccgttttc	catgagcaaa	ctgaaacggt	ttcatcgctc	tggagtgaat	accacgacga	2040
tttccggcag	tttctacaca	tatattcgca	agatgtggcg	tgttacggtg	aaaacctggc	2100
ctatttccct	aaagggTTta	ttgagaatat	gtttttcgtc	tcagccaatc	cctgggtgag	2160
tttcaccagt	tttgatttaa	acgtggccaa	tatggacaac	ttcttcgccc	ccgttttccac	2220
catgggcaaa	tattatacgc	aaggcgacaa	ggtgctgatg	ccgctggcga	ttcaggttca	2280
tcatgccgtc	tgtgatggct	tccatgtcgg	cagaatgctt	aatgaattac	aacagtactg	2340
cgatgagtgg	cagggcgggg	cgtaatctag	aggatccggc	ttactaaaag	ccagataaça	2400
glatgcgtat	ttgcgcgtg	atTTTTgcgg	tataagaata	tatactgata	tgtatacccc	2460
aagtatgtca	aaaagaggtg	tgctatgaag	cagcgtatta	cagtgacagt	tgacagcgac	2520
agctatcagt	tgctcaaggc	atatatgatg	tcaatatctc	cggtctggta	agcacaacca	2580
tgcagaatga	agcccgctct	ctgcgtgccg	aacgctggaa	agcggaaaat	caggaaggga	2640
tggctgaggt	cgcccggttt	attgaaatga	acggctcttt	tgctgacgag	aacagggact	2700
ggtgaaatgc	agtttaaggt	ttacacctat	aaaagagaga	gccgttatcg	tctgttttgt	2760
gatgtacaga	gtgatattat	tgacacgccc	gggcgacgga	tggatgcc	cctggccagt	2820
gcacgtctgc	tgtcagataa	agtctcccg	gaactttacc	cggtggtgca	tatcggggat	2880
gaaagctggc	gcatgatgac	caccgatatg	gccagtgtgc	cggtctccgt	tatcggggaa	2940
gaagtggctg	atctcagcca	ccgcgaaaat	gacatcaaaa	acgccattaa	cctgatgttc	3000
tggggaatat	aaatgtcagg	ctcccttata	cacagccagt	ctgcaggctg	accatagtga	3060
ctggatatgt	tgtgttttac	agtattatgt	agtctgtttt	ttatgcaaaa	tctaatttaa	3120
tatattgata	tttatatcat	tttacgtttc	tcgttcagct	ttcttgta	aagtggtttg	3180
atggccgcta	agtaagtaag	acgtcgagct	ctaagtaagt	aacggccgcc	accgcggtgg	3240
agctttggac	ttcttcgcca	gaggtttgg	caagtctcca	atcaagggtg	tcggcttgct	3300
taccttgcca	gaaatttacg	aaaagatgga	aaagggctca	atcggttgga	gatacgttgt	3360
tgacacttct	aaataagcga	atTTcttatg	atTTtatgatt	tttattatta	aataagttat	3420
aaaaaaaata	agtgtataca	aatttttaaag	tgactcttag	gttttaaaac	gaaaattctt	3480

attctttgagt aactcttttcc tgtagggtcag gttgcttttct caggtatagc atgagggtcgc 3540  
tcttattgac cacacctcta ccggcatgcc gagcaaagtc ctgcaaagtc ctccccattt 3600  
cacccaattg tagatatgct aactccagca atgagttgat gaatctcggg gtgtattttta 3660  
tgtcctcaga ggacaatacc tgttgtaatc gttcttccac acggatccca attcgcccta 3720  
tagtgagtcg tattacaatt cactggccgt cgtttttacaa cgtcgtgact gggaaaaccc 3780  
tggcggttacc caacttaatc gccttgccgc acatccccct ttcgccagct ggcgtaatat 3840  
cgaagaggcc cgcaccgatc gcccttccca acagttgcgc agcctgaatg gcgaatggac 3900  
ggcgccctgta gcggcgcatc aagcgcgggc ggtgtggtgg ttacgcgcag cgtgaccgct 3960  
acacttgcca gcgccttagc gcccgctcct ttcgcttttct tcccttccct tctcgccacg 4020  
ttcgccggct tttcccgta agctctaaat cgggggctcc ctttaggggt ccgatttagt 4080  
gctttacggc acctcgacc caaaaaactt gattaggggt atggttcacg tagtgggcca 4140  
tcgcccctgat agacgggttt tcgccccttg acgttgaggc ccacgttctt taatagtggg 4200  
ctcttggtcc aaactggaac aacactcaac cctatctcgg tctattcttt tgatttataa 4260  
gggattttgc cgatttcggc ctattgggta aaaaatgagc tgatttaaca aaaatttaac 4320  
gcgaatttta acaaaatatt aacgtttaca atttctgat gcgggtatttt ctccttacgc 4380  
atctgtgcgg tatttcacac cgcataatga cgggtcgagg agaacttcta gtatatccac 4440  
atacctaata ttattgcctt attaaaaatg gaatcggaac aattacatca aaatccacat 4500  
tctcttcaaa atcaattgtc ctgtacttcc ttgttcatgt gtgttcaaaa acgttatatt 4560  
tataggataa ttatactcta tttctcaaca agtaattggg tgtttggccg agcgggtctaa 4620  
ggcgccctgat tcaagaaata tcttgaccgc agttaactgt gggaatactc aggtatcgta 4680  
agatgcaaga gttcgaaatc cttagcaacc attatttttt tctcaacat aacgagaaca 4740  
cacagggggc ctatcgaca gaatcaaatt cgatgactgg aaattttttg ttaatttcag 4800  
aggtcgcctg acgcatatac ctttttcaac tgaaaaattg ggagaaaaag gaaagggtgag 4860  
aggccggaac cggcttttca tatagaatag agaagcggtc atgactaaat gcttgcatca 4920  
caatacttga agttgacaat attatttaag gacctattgt tttttccaat aggtggttag 4980  
caatcgctctt acttttcaac ttttcttacc ttttacattt cagcaatata tatatatatt 5040  
tcaaggatat accattctaa tgtctgcccc tatgtctgcc cctaagaaga tcgtcgtttt 5100  
gccagggtgac cacgttggtc aagaaatcac agccgaagcc attaagggtc ttaaagctat 5160  
ttctgatgtt cgttccaatg tcaagttcga tttcgaaaat catttaattg gtggtgctgc 5220  
tatcgatgct acagggtgtc cacttccaga tgaggcgctg gaagcctcca agaagggtga 5280  
tgccgttttg ttaggtgctg tgggtggtcc taaatggggg accggtagtg ttagacctga 5340

B1



acaaggttta	ctaaaaatcc	gtaaagaact	tcaattgtac	gccaaacttaa	gaccatgtaa	5400
ctttgcatcc	gactctcttt	tagacttata	tccaatcaag	ccacaatttg	ctaaaggtag	5460
tgacttcggt	gttgtagag	aatttagtgg	aggtatttac	tttggttaaga	gaaaggaaga	5520
cgatgggtgat	gggtgcgctt	gggtagtgta	acaatacacc	gttcagaag	tgcaaagaat	5580
cacaagaatg	gccgctttca	tggccctaca	acatgagcca	ccattgccta	tttggtcctt	5640
ggataaagct	aatgttttgg	cctcttcaag	attatggaga	aaaactgtgg	aggaaaccat	5700
caagaacgaa	ttccctacat	tgaagggttca	acatcaattg	attgattctg	ccgccatgat	5760
cctagttaag	aaccaaccc	acctaaatgg	tattataatc	accagcaaca	tgtttggtga	5820
tatcatctcc	gatgaagcct	ccgttatccc	aggttccttg	ggtttggtgc	catctgcgtc	5880
cttggcctct	ttgccagaca	agaacaccgc	atttggtttg	tacgaaccat	gccacggttc	5940
tgctccagat	ttgccaaaga	ataagggtga	ccctatcgcc	actatcttgt	ctgctgcaat	6000
gatgttgaaa	ttgtcattga	acttgctga	agaaggtaag	gccattgaag	atgcagttaa	6060
aaagggtttg	gatgcaggta	tcagaactgg	tgatttaggt	ggttccaaca	gtaccaccga	6120
agtcggtgat	gctgtcgccg	aagaagttaa	gaaaatcctt	gcttaaaaag	attctctttt	6180
tttatgatat	ttgtacataa	actttataaa	tgaaattcat	aatagaaacg	acacgaaatt	6240
acaaaatgga	atatgttcat	agggtagacg	aaactatata	cgcaatctac	atacatttat	6300
caagaaggag	aaaaaggagg	atagtaaagg	aatacaggta	agcaaattga	tactaatggc	6360
tcaacgtgat	aaggaaaaag	aattgcactt	taacattaat	attgacaagg	aggagggcac	6420
cacacaaaaa	gtaggtgta	acagaaaatc	atgaaactac	gattccta	ttgatattgg	6480
aggattttct	ctaaaaaaa	aaaaatacaa	caaataaaaa	acactcaatg	acctgaccat	6540
ttgatggagt	ttaagtcaat	accttcttga	accatttccc	ataatgggtga	aagttccctc	6600
aagaatttta	ctctgtcaga	aacggcctta	cgacgtagtc	gatatgggtgc	actctcagta	6660
caatctgctc	tgatgccgca	tagttaagcc	agccccgaca	cccgccaaca	cccgctgacg	6720
cgccctgacg	ggcttgtctg	ctcccggcat	ccgttacag	acaagctgtg	accgtctccg	6780
ggagctgcat	gtgtcagagg	ttttcacctg	catcacccgaa	acgcgcgaga	cgaaagggcc	6840
tcgtgatacg	cctattttta	taggttaatg	tcatgataat	aatggtttct	taggacggat	6900
cgcttgcttg	taacttacac	gcgcctcgta	tcttttaatg	atggaataat	ttgggaattt	6960
actctgtgtt	tatttatatt	tatgttttgt	atttggtatt	tagaaagtaa	ataaagaagg	7020
tagaagagtt	acggaatgaa	gaaaaaaaaa	taaacaaagg	tttaaaaaat	ttcaacaaaa	7080
agcgtacttt	acatatatat	ttattagaca	agaaaagcag	attaaataga	tatacatctg	7140
attaacgata	agtaaaatgt	aaaatcacag	gattttcgtg	tgtggctctc	tacacagaca	7200

agatgaaaca	attcggcatt	aatacctgag	agcaggaaga	gcaagataaa	aggtagtatt	7260
tgttggcgat	ccccctagag	tctttttacat	cttcggaaaa	caaaaactat	tttttcttta	7320
atctcttttt	ttactttcta	tttttaattt	atatatttat	attaaaaaat	ttaaattata	7380
attattttta	tagcacgtga	tgaaaaggac	ccaggtggca	cttttcgggg	aaatgtgcgc	7440
ggaacccta	tttgtttatt	tttctaaata	cattcaaata	tgtatccgct	catgagacaa	7500
taaccctgat	aaatgcttca	ataatctgca	gctctggccc	gtgtctcaaa	atctctgatg	7560
ttacattgca	caagataaaa	atatatcatc	atgaacaata	aaactgtctg	cttacataaa	7620
cagtaataca	aggggtgtta	tgagccatat	tcaacgggaa	acgtcttgct	ggaggccgcg	7680
attaaattcc	aacatggatg	ctgatttata	tgggtataaa	tgggctcgcg	ataatgtcgg	7740
gcaatcaggt	gcgacaatct	ttcgattgta	tgggaagccc	gatgcgccag	agttgtttct	7800
gaaacatggc	aaaggtagcg	ttgccaatga	tgttacagat	gagatggtca	gactaaactg	7860
gctgacggaa	tttatgcctc	ttccgaccat	caagcatttt	atccgtactc	ctgatgatgc	7920
atggttactc	accactgcca	tcgcggggaa	aacagcattc	caggtattag	aagaatatcc	7980
tgattcaggt	gaaaatattg	ttgatgcgct	ggcagtggtc	ctgcgccggt	tgcattcgat	8040
tcctgtttgt	aattgtcctt	ttaacagcga	tcgcgtatct	cgtctcgcct	aggcgcaatc	8100
acgaatgaat	aacggttttg	ttgatgcgag	tgattttgat	gacgagcgta	atggctggcc	8160
tgttgaacaa	gtctggaaag	aaatgcatac	gcttttgcca	ttctcacccg	attcagtcgt	8220
cactcatggt	gatttctcac	ttgataacct	tatttttgac	gaggggaaat	taataggttg	8280
tattgatggt	ggacgagtcg	gaatcgcaga	ccgataccag	gatcttgcca	tcctatggaa	8340
ctgcctcgg	gagttttctc	cttcattaca	gaaacggcct	tttcaaaaat	atgggtattga	8400
taatcctgat	atgaataaat	tgcagtttca	tttgatgctc	gatgagtttt	tctaatacaga	8460
attgggtta	tggttgtaac	actggcagag	cattacgctg	acttgacggg	acggcgcatg	8520
acaaaaatcc	cttaacgtga	gttttcgttc	cactgagcgt	cagaccccg	agaaaagatc	8580
aaaggatctt	cttgagatcc	tttttttctg	cgcgtaatct	gctgcttgca	aacaaaaaaa	8640
ccaccgctac	cagcgggtgt	ttgtttgccg	gatcaagagc	taccaactct	ttttccgaag	8700
gtaactggct	tcagcagagc	gcagatacca	aatactgtcc	ttctagtgtg	gccgtagtta	8760
ggccaccact	tcaagaactc	tgtagcaccg	cctacatacc	tcgctctgct	aatcctgtta	8820
ccagtggctg	ctgccagtgg	cgataagtcg	tgtcttaccg	ggttggtact	aagacgatag	8880
ttaccggata	aggcgcagcg	gtcgggctga	acgggggggt	cgtgcacaca	gccagcttg	8940
gagcgaacga	cctacaccga	actgagatac	ctacagcgtg	agcattgaga	aagcgccacg	9000
cttcccgaag	ggagaaaggc	ggacaggtat	ccggtaagcg	gcagggtcgg	aacaggagag	9060

cgcacgaggg agcttccagg ggggaacgcc tggatatctt atagtctgt cggttttcgc 9120  
cacctctgac ttgagcgctc atttttgtga tgctcgtcag gggggccgag cctatggaaa 9180  
aacgccagca acgcggcctt ttacgggttc ctggcctttt gctggccttt tgctcacatg 9240  
ttctttcctg cgttatcccc tgattctgtg gataaccgta ttaccgcctt tgagtgaagt 9300  
gataccgctc gccgcagccg aacgaccgag cgcagcgagt cagtgaagca ggaagcggaa 9360  
gagcgcccaa tacgcaaacc gcctctcccc gcgcgttggc cgattcatta atgcagctgg 9420  
cacgacaggt ttcccgactg gaaagcgggc agtgagcgca acgcaattaa tgtgagttac 9480  
ctcactcatt aggcacccca ggctttacac tttatgcttc cggctcctat gttgtgtgga 9540  
attgtgagcg gataacaatt tcacacagga aacagctatg accatgatta cgccaagctc 9600  
ggaattaacc ctactaaag ggaacaaaag ctggtaccga tcccagctt tgcaaattaa 9660  
agccttcgag cgtcccaaaa ccttctcaag caagggtttt agtataatgt tacatgcgta 9720  
cacgcgctctg tacagaaaaa aaagaaaaat ttgaaatata aataacgttc ttaataactaa 9780  
cataactata aaaaaataaa tagggaccta gacttcaggt tgtctaactc ctctcttttc 9840  
ggtagagcg gatgtggggg gagggcggtga atgtaagcgt gacataacta attacatgat 9900  
atcgacaaag gaaaaggggc ctgtttactc acaggctttt ttcaagtagg taattaagtc 9960  
gtttctgtct ttttcttct tcaaccacc aaaggccatc ttggtacttt tttttttttt 10020  
tttttttttt tttttttttt tttttttttt tttttttttt tttttttttt tttttttttt 10080  
tttttttttt tttttttttt tcatagaaat aatacagaag tagatgttga attagattaa 10140  
actgaagata tataatttat tggaaaatac atagagcttt ttgttgatgc gcttaagcga 10200  
tcaattcaac aacaccacca gcagctctga tttttcttcc agccaacttg gagacgaatc 10260  
tagctttgac gataactgga acatttgga ttctaccctt acccaagatc ttaccgtaac 10320  
cggtcgccaa agtgtcaata actggagcag tttccttaga agcagatttc aagtattggt 10380  
ctctctgtc ttctgggac aatgtccaca atttgtccaa gttcaagact ggcttccaga 10440  
aatgagcttg ttgcttgtgg aagtatctca taccaacctt accgaaataa cctggatggt 10500  
atztatccat gttaattctg tggatgatgt gaccaccggc catacctcta ccaccgggt 10560  
gctttctgtg ctaccgata cgacctttac cggctgagac gtgacctctg tgctttctag 10620  
tcttagtgaa tctggaaggc attcttgatt agttggatga ttgttctggg atttaatgca 10680  
aaaatcactt aagaaggaaa atcaacggag aaagcaaacg ccatcttaaa tatacgggat 10740  
acagatgaaa gggtttgaac ctatctggaa aatagcatta aacaagcgaa aaactgcgag 10800  
gaaaattggt tgcgtctctg cgggctatcc acgcgccaga ggaaaatagg aaaaataaca 10860  
gggcattaga aaaataattt tgattttggt aatgtgtggg tcttgggtga cagatgttac 10920

B1

attggttaca gtactcttgt ttttgetgtg tttttcgatg aatctccaaa atggttggtta 10980  
gcacatggaa gagtcaccga tgctaagtta tctctatgta agctacgtgg cgtgactttt 11040  
gatgaagccg cacaagagat acaggattgg caactgcaaa tagaatctgg ggatcccccc 11100  
tcgagatccg ggatcgaaga aatgatggta aatgaaatag gaaatcaagg agcatgaagg 11160  
caaaagacaa atataagggt cgaacgaaaa ataaagtga aagtgttgat atgatgtatt 11220  
tggtctttgcg gcgccgaaaa aacgagttta cgcaattgca caatcatgct gactctgtgg 11280  
cggacccgcg ctcttgccgg cccggcgata acgctgggcg tgaggctgtg cccggcggag 11340  
ttttttgcmc ctgcattttc caaggtttac cctgcgctaa ggggagat tggagaagca 11400  
ataagaatgc cggttggggg tgcatgatg acgaccacga caactggtgt cattatttaa 11460  
gttgccgaaa gaacctgagt gcatttgcaa catgagtata ctagaagaat gagccaagac 11520  
ttgcgagacg cgagtttgcc ggtggtgcga acaatagagc gaccatgacc ttgaagggtga 11580  
gacgcgcata accgctagag tactttgaag aggaaacagc aataggggtg ctaccagtat 11640  
aaatagacag gtacatacaa cactggaaat ggttgtctgt ttgagtacgc tttcaattca 11700  
tttgggtgtg cac 11713

<210> 150

<211> 8923

<212> DNA

<213> pDEST22

<220>

<221> gene

<222> (904) .. (1248)

<223> GAL4 AD

<220>

<221> gene

<222> (1264) .. (1388)

<223> attR1

<220>

<221> gene

<222> (1638)..(2297)

<223> CmR

<220>

<221> gene

<222> (2417)..(2501)

<223> inactivated ccdA

<220>

<221> gene

<222> (2639)..(2944)

<223> ccdB

B1 <220>

<221> gene

<222> (2985)..(3109)

<223> attR2

<220>

<221> gene

<222> (3831)..(4318)

<223> f1 (f1 intergenic region)

<220>

<221> gene

<222> (4334)..(5176)

<223> TRP1

<220>

<221> gene

<222> (6110)..(7194)

<223> ampR

<220>

<221> gene

<222> (866)..(8344)

<223> pADH (yeast ADH promoter)

<400> 150

B1

ttcatttggg	tgtgcacttt	attatgttac	aatatggaag	ggaactttac	acttctccta	60
tgcacatata	ttaattaaag	tccaatgcta	gtagagaagg	ggggtaacac	ccctccgcgc	120
tcttttccga	tttttttcta	aaccgtggaa	tatttcggat	atccttttgt	tgtttccggg	180
tgtacaatat	ggacttcctc	ttttctggca	accaaaccga	tacatcgga	ttcctataat	240
accttcgttg	gtctccctaa	catgtaggtg	gcggagggga	gatatacaat	agaacagata	300
ccagacaaga	cataatgggc	taaacaagac	tacaccaatt	acactgcctc	attgatgggtg	360
gtacataacg	aactaatact	gtagccctag	acttgatagc	catcatcata	tcgaagtttc	420
actacccttt	ttccatttgc	catctattga	agtaataata	ggcgcatgca	acttcttttc	480
tttttttttc	ttttctctct	cccccgttgt	tgtctcacca	tatccgcaat	gacaaaaaaa	540
atgatggaag	acactaaagg	aaaaaattaa	cgacaaagac	agcaccaaca	gatgtcggtg	600
ttccagagct	gatgaggggt	atcttcgaac	acacgaaact	ttttccttcc	ttcattcacg	660
cacactactc	tctaattgagc	aacggtatac	ggccttcctt	ccagttactt	gaatttgaaa	720
taaaaaaaagt	ttgccgcttt	gctatcaagt	ataaatagac	ctgcaattat	taatcttttg	780
tttctcgtc	attgttctcg	ttccctttct	tccttgtttc	tttttctgca	caatatttca	840
agctatacca	agcatacaat	caactccaag	cttatgccca	agaagaagcg	gaagggtctcg	900
agcggcgcca	attttaatca	aagtgggaat	attgctgata	gctcattgtc	cttcactttc	960
actaacagta	gcaacgggtc	gaacctcata	acaactcaaa	caaattctca	agcgctttca	1020
caaccaattg	cctcctctaa	cgttcatgat	aacttcatga	ataatgaaat	cacggctagt	1080
aaaattgatg	atggtaataa	ttcaaaacca	ctgtcacctg	gttggacgga	ccaaactgcg	1140
tataacgcgt	ttggaatcac	tacagggatg	tttaatacca	ctacaatgga	tgatgtatat	1200
aactatctat	tcgatgatga	agatacccca	ccaaacccaa	aaaaagaggg	tgggtcgaat	1260
caaacaagtt	tgtacaaaaa	agctgaacga	gaaacgtaaa	atgatataaa	tatcaatata	1320
ttaaattaga	ttttgcataa	aaaacagact	acataatact	gtaaaacaca	acatatccag	1380
tcactatggc	ggccgctaag	ttggcagcat	cacccgacgc	actttgcgcc	gaataaatac	1440

ctgtgacgga	agatcacttc	gcagaataaa	taaatcctgg	tgtccctggt	gataccggga	1500
agccctgggc	caacttttgg	cgaaaatgag	acgttgatcg	gcacgtaaga	ggttccaact	1560
ttcaccataa	tgaaataaga	tcactaccgg	gcgtattttt	tgagttatcg	agatttttcag	1620
gagctaagga	agctaaaatg	gagaaaaaaa	tcactggata	taccaccgtt	gatatatccc	1680
aatggcatcg	taaagaacat	tttgaggcat	ttcagtcagt	tgctcaatgt	acctataacc	1740
agaccgttca	gctggatatt	acggcctttt	taaagaccgt	aaagaaaaat	aagcacaagt	1800
tttatccggc	ctttattcac	attcttgccc	gcctgatgaa	tgctcatccg	gaattccgta	1860
tggcaatgaa	agacggtgag	ctggtgatat	gggatagtgt	tcacccttgt	tacaccgttt	1920
tccatgagca	aactgaaacg	ttttcatcgc	tctggagtga	ataccacgac	gatttccggc	1980
agtttctaca	catatatctg	caagatgtgg	cgtgttacgg	tgaaaacctg	gcctattttcc	2040
ctaaaggggt	tattgagaat	atgtttttcg	tctcagccaa	tccttgggtg	agtttcacca	2100
gttttgattt	aaacgtggcc	aatatggaca	acttcttcgc	ccccgttttc	accatgggca	2160
aatattatac	gcaaggcgac	aagggtgctga	tgccgctggc	gattcaggtt	catcatgccg	2220
tctgtgatgg	cttccatgtc	ggcagaatgc	ttaatgaatt	acaacagtac	tgcgatgagt	2280
ggcagggcgg	ggcgtaatct	agaggatccg	gcttactaaa	agccagataa	cagtatgcgt	2340
atttgcgcg	tgattttttg	ggtataagaa	tatatactga	tatgtatacc	cgaagtatgt	2400
caaaaagagg	tgtgctatga	agcagcgat	tacagtgaca	gttgacagcg	acagctatca	2460
gttgctcaag	gcatatatga	tgtcaatata	tccgggtctg	taagcacaac	catgcagaat	2520
gaagcccgtc	gtctgcgtgc	cgaacgctgg	aaagcggaaa	atcaggaagg	gatggctgag	2580
gtcgcccgtt	ttattgaaat	gaacggctct	tttgctgacg	agaacaggga	ctgggtgaaat	2640
gcagtttaag	gtttacacct	ataaaagaga	gagccgttat	cgtctgtttg	tggatgtaca	2700
gagtgatatt	attgacacgc	ccgggcgacg	gatgggtgatc	cccttgcca	gtgcacgtct	2760
gctgtcagat	aaagtctccc	gtgaacttta	cccgggtggtg	catatcgggg	atgaaagctg	2820
gcgcatgatg	accaccgata	tggccagtgt	gccggtctcc	gttatcgggg	aagaagtggc	2880
tgatctcagc	caccgcgaaa	atgacatcaa	aaacgccatt	aacctgatgt	tctggggaat	2940
ataaatgtca	ggctccctta	tacacagcca	gtctgcaggt	cgaccatagt	gactggatat	3000
gttgtgtttt	acagtattat	gtagtctggt	ttttatgcaa	aatctaattt	aatatattga	3060
tatttatatc	attttacgtt	tctcgttcag	ctttcttgta	caaagtgggt	tgatggccgc	3120
taagtaagta	agacgtcgag	ctctaagtaa	gtaacggccg	ccaccgcggt	ggagcttttg	3180
acttcttcgc	cagaggtttg	gtcaagtctc	caatcaaggt	tgtcggcttg	tctaccttgc	3240
cagaaattta	cgaaaagatg	gaaaagggtc	aaatcgttgg	tagatacggt	gttgacactt	3300

ctaaataagc gaattttctta tgatttatga tttttattat taaataagtt ataaaaaaaa 3360  
taagtgtata caaatTTTTaa agtgactctt aggtttttaa acgaaaattc ttattcttga 3420  
gtaactcttt cctgtaggtc aggttgcttt ctcaggtata gcatgaggtc gctcttattg 3480  
accacacctc taccggcatg ccgagcaaat gcctgcaaat cgctcccat ttcaccaat 3540  
tgtagatatg ctaactccag caatgagttg atgaatctcg gtgtgtattt tatgtctca 3600  
gaggacaata cctgttgtaa tcgttcttcc acacggatcc caattcgccc tatagtgagt 3660  
cgtattacaa ttcactggcc gtctgtttac aacgtcgtga ctgggaaaac cctggcggtta 3720  
cccaacttaa tcgccttgca gcacatcccc ctttcgccag ctggcgtaat agcgaagagg 3780  
cccgcacga tcgcccttcc caacagttgc gcagcctgaa tggcgaatgg acgcgcctg 3840  
tagcggcgca ttaagcgcgg cgggtgtggt gggtacgcgc agcgtgaccg ctacacttgc 3900  
cagcgcccta gcgcccgtc ctttcgcttt cttcccttcc tttctcgcca cgttcgcgg 3960  
ctttccccgt caagctctaa atcgggggct cccttttaggg ttccgattta gtgctttacg 4020  
gcacctcgac ccaaaaaaac ttgattagggt tgatggttca cgtagtgggc catcgccctg 4080  
atagacggtt tttcgccctt tgacgttgga gtccacgttc tttaatagtg gactcttggt 4140  
ccaaactgga acaacactca accctatctc ggtctattct tttgatttat aagggatttt 4200  
gccgatttcg gcctattggt taaaaaatga gctgatttaa caaaaattta acgcgaattt 4260  
taacaaaata ttaacgttta caatttctcg atgcggtatt ttctccttac gcatctgtgc 4320  
ggtatttcac accgcaggca agtgcacaaa caatacttaa ataaatacta ctcagtaata 4380  
acctatttct tagcattttt gacgaaattt gctattttgt tagagtcttt tacaccattt 4440  
gtctccacac ctccgcttac atcaacacca ataacgcat ttaatctaag cgcacacca 4500  
acattttctg gcgtcagtc accagctaac ataaaatgta agctttcggg gctctcttgc 4560  
cttccaacc agtcagaaat cgagttccaa tccaaaagtt cacctgtccc acctgcttct 4620  
gaatcaaaca aggaataaaa cgaatgaggt ttctgtgaag ctgcactgag tagtatgttg 4680  
cagtcttttg gaaatacgag tcttttaata actggcaaac cgaggaactc ttggtattct 4740  
tgccacgact catctccatg cagttggacg atatcaatgc cgtaatcatt gaccagagcc 4800  
aaaacatcct ccttaggttg attacgaaac acgccaacca agtatttcgg agtgccctgaa 4860  
ctatttttat atgcttttac aagacttgaa attttcttg caataaccgg gtcaattggt 4920  
ctctttctat tgggcacaca tataataccc agcaagtcag catcggaatc tagagcacat 4980  
tctgcggcct ctgtgctctg caagccgcaa actttcacca atggaccaga actacctgtg 5040  
aaattaataa cagacatact ccaagctgcc tttgtgtgct taatcacgta tactcacgtg 5100  
ctcaatagtc accaatgccc tccctcttgg ccctctcctt ttcttttttc gaccgaatta 5160

B1



attctttaatc ggcaaaaaaa gaaaagctcc ggatcaagat tgtacgtaag gtgacaagct 5220  
 atttttcaat aaagaatatc ttccactact gccatctggc gtcataactg caaagtacac 5280  
 atatattacg atgctgtcta ttaaattgctt cctatatattat atatatagta atgtcgttta 5340  
 tgggtgcactc tcagtacaat ctgctctgat gccgcatagt taagccagcc ccgacacccg 5400  
 ccaacacccg ctgacgcgcc ctgacgggct tgtctgctcc cggcatccgc ttacagacaa 5460  
 gctgtgaccg tctccgggag ctgcatgtgt cagagggtttt caccgtcatc accgaaacgc 5520  
 gcgagacgaa agggcctcgt gatacgccta tttttatagg ttaatgtcat gataataatg 5580  
 gtttcttagg acggatcgct tgccgtgaac ttacacgcgc ctcgatatctt ttaatgatgg 5640  
 aataatttgg gaatttactc tgtgtttatt ttttttatg ttttgtattt ggattttaga 5700  
 aagtaaataa agaaggtaga agagttacgg aatgaagaaa aaaaaataaa caaagggttta 5760  
 aaaaatttca acaaaaagcg tactttacat atatatttat tagacaagaa aagcagatta 5820  
 aatagatata cattcgatta acgataagta aaatgtaaaa tcacaggatt ttcgtgtgtg 5880  
 gtcttctaca cagacaagat gaaacaattc ggcattaata cctgagagca ggaagagcaa 5940  
 gataaaaggt agtatttgtt ggcgatcccc ctagagtctt ttacatcttc ggaaaacaaa 6000  
 aactattttt tctttaattt ctttttttac tttctatttt taatttatat atttatatta 6060  
 aaaaatttaa attataatta tttttatagc acgtgatgaa aaggaccag gtggcacttt 6120  
 tcggggaaat gtgcgcggaa cccctatttg tttatttttc taaatacatt caaatatgta 6180  
 tccgctcatg agacaataac cctgataaat gcttcaataa tattgaaaaa ggaagagtat 6240  
 gagtattcaa catttcctg tgcccttat tccctttttt gcggcatttt gccttctctg 6300  
 ttttgctcac ccagaaacgc tggtgaaagt aaaagatgct gaagatcagt tgggtgcacg 6360  
 agtgggttac atcgaactgg atctcaacag cggttaagatc cttgagagtt ttcgccccga 6420  
 agaacgtttt ccaatgatga gcacttttaa agttctgcta tgtggcgcggt tattatcccg 6480  
 tattgacgcc gggcaagagc aactcggtcg ccgcatacac tattctcaga atgacttggt 6540  
 tgagtactca ccagtcacag aaaagcatct tacggatggc atgacagtaa gagaattatg 6600  
 cagtgtgccc ataaccatga gtgataaacac tgccggccaac ttacttctga caacgatcgg 6660  
 aggaccgaag gagctaaccg ctttttttca caacatgggg gatcatgtaa ctgccttga 6720  
 tcgttgggaa ccggagctga atgaagccat accaaacgac gagcgtgaca ccacgatgcc 6780  
 tgtagcaatg gcaacaacgt tgcgcaaact attaactggc gaactactta ctctagcttc 6840  
 ccggcaacaa ttaatagact ggatggaggc ggataaagtt gcaggaccac ttctgcgctc 6900  
 ggcccttccg gctggctggt ttattgctga taaatctgga gccggtgagc gtgggtctcg 6960  
 cggtatcatt gcagcactgg ggccagatgg taagccctcc cgtatcgtag ttatctacac 7020

B1

gacgggcagt caggcaacta tggatgaacg aaatagacag atcgctgaga taggtgcctc 7080  
actgattaag cattggtaac tgtcagacca agtttactca tatatacttt agattgattt 7140  
aaaacttcat ttttaattta aaaggatcta ggtgaagatc ctttttgata atctcatgac 7200  
caaaatccct taacgtgagt tttcgttcca ctgagcgtca gaccccgtag aaaagatcaa 7260  
aggatcttct tgagatcctt tttttctgcg cgtaatctgc tgcttgcaaa caaaaaaacc 7320  
accgctacca gcggtgggtt gtttgccgga tcaagagcta ccaactcttt ttccgaaggt 7380  
aactggcttc agcagagcgc agataccaaa tactgtcctt ctagtgtagc cgtagttagg 7440  
ccaccacttc aagaactctg tagcacccgc tacatacctc gctctgctaa tctgttacc 7500  
agtggctgct gccagtggcg ataagtcgtg tcttaccggg ttggactcaa gacgatagtt 7560  
accggataag gcgcagcggg cgggctgaac ggggggttcg tgcacacagc ccagcttgga 7620  
gcgaacgacc tacaccgaac tgagatacct acagcgtgag cattgagaaa gcgccacgct 7680  
B1 tcccgaaggg agaaaggcgg acaggatatcc ggtaagcggc agggtcggaa caggagagcg 7740  
cacgagggag cttccagggg ggaacgcctg gtatctttat agtcctgtcg ggtttcgcca 7800  
cctctgactt gagcgtcgat ttttgtgatg ctgcgcaggg gggccgagcc tatggaaaaa 7860  
cgccagcaac gcggcctttt tacggttcct ggccttttgc tggccttttg ctcacatggt 7920  
ctttcctgcg ttatccctg attctgtgga taaccgtatt accgcctttg agtgagctga 7980  
taccgctcgc cgcagccgaa cgaccgagcg cagcgagtca gtgagcgagg aagcgggaaga 8040  
gcgcccaata cgcaaaccgc ctctccccgc gcgttgcccg attcattaat gcagctggca 8100  
cgacaggttt cccgactgga aagcgggcag tgagcgcaac gcaattaatg tgagttacct 8160  
cactcattag gcacccagc ctttacactt tatgcttccg gctcctatgt tgtgtggaat 8220  
tgtgagcgga taacaatttc acacaggaaa cagctatgac catgattacg ccaagctcgg 8280  
aattaaccct cactaaaggg aacaaaagct ggggtaccggg cccccctcg agatccggga 8340  
tcgaagaaat gatggtaa at gaaataggaa atcaaggagc atgaaggcaa aagacaaata 8400  
taagggtcga acgaaaaata aagtgaaaag tgttgatatg atgtatttgg ctttgccggc 8460  
ccgaaaaaac gagtttacgc aattgcacaa tcatgctgac tctgtggcgg acccgcgctc 8520  
ttgccggccc ggcgataacg ctgggcgtga ggcgtgtgcc ggcggagttt tttgcgcctg 8580  
cattttccaa ggtttaccct gcgctaaggg gcgagattgg agaagcaata agaatgccgg 8640  
ttgggggttgc gatgatgacg accacgacaa ctgggtgtcat tatttaagtt gccgaaagaa 8700  
cctgagtgca tttgcaacat gagtatacta gaagaatgag ccaagacttg cgagacgcga 8760  
gtttgccggg ggtgcgaaca atagagcgac catgaccttg aaggtgagac gcgcataacc 8820  
gctagagtac tttgaagagg aaacagcaat agggttgcta ccagtataaa tagacaggta 8880

catacaacac tggaaatggg tgtctgtttg agtacgcttt caa

8923

<210> 151

<211> 6264

<212> DNA

<213> pDEST23

<220>

<221> gene

<222> (161)..(285)

<223> attR1

<220>

<221> gene

<222> (394)..(1053)

<223> CmR

<220>

<221> gene

<222> (1173)..(1257)

<223> inactivated ccdA

<220>

<221> gene

<222> (1395)..(1700)

<223> ccdB

<220>

<221> gene

<222> (1741)..(1865)

<223> attR2

\$1

<220>

<221> gene

<222> (1883) .. (1911)

<223> his6

<220>

<221> gene

<222> (2574) .. (3434)

<223> ampR

<220>

<221> gene

<222> (3583) .. (4222)

<223> ori

<400> 151

tcttcccat cggtgatgtc ggcgatatag ggcgcagcaa cgcacactgt ggcgcggtg 60  
atgccggcca cgatgcgtcc ggcgtagagg atcgagatct cgatcccgcg aaattaatc 120  
gactcactat agggagacca caacggtttc cctctagatc acaagtttgt acaaaaaagc 180  
tgaacgagaa acgtaaaatg atataaatat caatatatta aattagattt tgcataaaaa 240  
acagactaca taatactgta aaacacaaca tatccagtca ctatggcggc cgcattaggg 300  
acccagggt ttacacttta tgcttcggc tcgtataatg tgtggatttt gagttaggat 360  
ccggcgagat tttcaggagc taaggaagct aaaatggaga aaaaaatcac tggatatacc 420  
accgttgata tatcccaatg gcatcgtaaa gaacattttg aggcatttca gtcagttgct 480  
caatgtacct ataaccagac cgttcagctg gatattacgg cttttttaa gaccgtaaag 540  
aaaaataagc acaagtttta tccggccttt attcacattc ttgcccgcct gatgaatgct 600  
catccggaat tccgtatggc aatgaaagac ggtgagctgg tgatatggga tagtgttcac 660  
ccttgttaca ccgttttcca tgagcaaact gaaacgtttt catcgctctg gagtgaatac 720  
cacgacgatt tccggcagtt tctacacata tattcgcaag atgtggcgtg ttacggtgaa 780  
aacctggcct atttccctaa agggtttatt gagaatatgt ttttcgtctc agccaatccc 840  
tggttgagtt tcaccagttt tgatttaaac gtggccaata tggacaactt cttcgcccc 900  
gttttcacca tgggcaaata ttatcgcaa ggcgacaagg tgctgatgcc gctggcgatt 960

cagggttcac	atgccgtctg	tgatggcttc	catgtcggca	gaatgcttaa	tgaattacaa	1020
cagtactgcg	atgagtggca	gggcggggcg	taaacgcgtg	gatccggctt	actaaaagcc	1080
agataacagt	atgcgtat	gcgcgctgat	ttttgcggta	taagaatata	tactgatatg	1140
tatacccgaa	gtatgtcaaa	aagaggtgtg	ctatgaagca	gcgtattaca	gtgacagttg	1200
acagcgacag	ctatcagttg	ctcaaggcat	atatgatgtc	aatatctccg	gtctggtaag	1260
cacaaccatg	cagaatgaag	cccgtcgtct	gcgtgccgaa	cgctggaaaag	cggaaaatca	1320
ggaagggatg	gctgaggtcg	cccggtttat	tgaaatgaac	ggctcttttg	ctgacgagaa	1380
cagggactgg	tgaaatgcag	tttaaggttt	acacctataa	aagagagagc	cgttatcgtc	1440
tgtttgtgga	tgtacagagt	gatattattg	acacgcccgg	gcgacggatg	gtgatcccc	1500
tgccagtg	acgtctgctg	tcagataaag	tctcccgta	actttaccg	gtggtgcata	1560
tcggggatga	aagctggcgc	atgatgacca	ccgatatggc	cagtgtgccg	gtctccgtta	1620
tcggggaaga	agtggctgat	ctcagccacc	gcgaaaatga	catcaaaaac	gccattaacc	1680
tgatgttctg	gggaatataa	atgtcaggct	cccttataca	cagccagtct	gcaggtcgac	1740
catagtgact	ggatatgttg	tgttttacag	tattatgtag	tctgtttttt	atgcaaaatc	1800
taatttaata	tattgatatt	tatatcattt	tacgtttctc	gttcagcttt	cttgtacaaa	1860
gtggtgatta	tgtcgtacta	ccatcaccat	caccatcacc	tcgatgagca	ataactagca	1920
taacccttg	gggcctctaa	acgggtcttg	aggggttttt	tgctgaaagg	aggaactata	1980
tccgatatc	cacaggacgg	gtgtggtcgc	catgatcgcg	tagtcgatag	tggctccaag	2040
tagcgaagcg	agcaggactg	ggcggcgcc	aaagcggtcg	gacagtgtc	cgagaacggg	2100
tgcgcataga	aattgcatca	acgcatatag	cgctagcagc	acgccatagt	gactggcgat	2160
gctgtcggaa	tggacgatat	cccgaagag	gcccggcagt	accggcataa	ccaagcctat	2220
gcctacagca	tccaggggtga	cggtgccgag	gatgacgatg	agcgcattgt	tagatttcat	2280
acacggtgcc	tgactgcgtt	agcaatttaa	ctgtgataaa	ctaccgcatt	aaagcttatt	2340
gatgataagc	tgtcaaacat	gagaattctt	gaagacgaaa	gggcctcgtg	atagccctat	2400
ttttataggt	taatgtcatg	ataataatgg	tttcttagac	gtcaggtggc	acttttcggg	2460
gaaatgtgcg	cgaaccct	atttgtttat	ttttctaaat	acattcaa	atgtatccgc	2520
tcatgagaca	ataaccctga	taaatgcttc	aataatattg	aaaaaggaag	agtatgagta	2580
ttcaacattt	ccgtgtcgcc	cttatccct	tttttgcggc	attttgcctt	cctgtttttg	2640
ctcaccgaga	aacgctggtg	aaagtaaaag	atgctgaaga	tcagttgggt	gcacgagtgg	2700
gttacatcga	actggatctc	aacagcggta	agatccttga	gagttttcgc	cccgaagaac	2760
gttttccaat	gatgagcact	tttaaagttc	tgctatgtgg	cgcggtatta	tcccgtgttg	2820

acgccgggca	agagcaactc	ggtcgccgca	tacactattc	tcagaatgac	ttgggttgagt	2880
actcaccagt	cacagaaaag	catcttacgg	atggcatgac	agtaagagaa	ttatgcagtg	2940
ctgccataac	catgagtgat	aacactgcgg	ccaacttact	tctgacaacg	atcggaggac	3000
cgaaggagct	aaccgctttt	ttgcacaaca	tgggggatca	tgtaactcgc	cttgatcggt	3060
gggaaccgga	gctgaatgaa	gccataccaa	acgacgagcg	tgacaccacg	atgcctgcag	3120
caatggcaac	aacgttgcg	aaactattaa	ctggcgaaact	acttactcta	gcttccccgc	3180
aacaattaat	agactggatg	gaggcggata	aagttgcagg	accacttctg	cgctcggccc	3240
ttccggctgg	ctggttttatt	gctgataaat	ctggagccgg	tgagcgtggg	tctcgcggta	3300
tcattgcagc	actggggcca	gatggtaagc	cctcccgtat	cgtagttatc	tacacgacgg	3360
ggagtcaggc	aactatggat	gaacgaaata	gacagatcgc	tgagataggt	gcctcactga	3420
ttaagcattg	gtaactgtca	gaccaagttt	actcatatat	actttagatt	gatttaaaac	3480
ttcattttta	atttaaaagg	atctaggtga	agatcctttt	tgataatctc	atgacaaaaa	3540
tcccttaacg	tgagtttttcg	ttccactgag	cgtcagaccc	cgtagaaaag	atcaaaggat	3600
cttcttgaga	tccttttttt	ctgcgcgtaa	tctgctgctt	gcaaacaaaa	aaaccaccgc	3660
taccagcgg	ggtttgtttg	ccggatcaag	agctaccaac	tctttttccg	aaggtaactg	3720
gcttcagcag	agcgcagata	ccaaatactg	tccttctagt	gtagccgtag	ttaggccacc	3780
acttcaagaa	ctctgtagca	ccgcctacat	acctcgctct	gctaatectg	ttaccagtgg	3840
ctgctgccag	tggcgataag	tcgtgtctta	ccgggttgga	ctcaagacga	tagttaccgg	3900
ataaggcgca	gcggtcgggc	tgaacggggg	gttcgtgcac	acagcccagc	ttggagcgaa	3960
cgacctacac	cgaactgaga	tacctacagc	gtgagctatg	agaaagcgcc	acgcttcccc	4020
aaggggagaaa	ggcggacagg	tatccggtaa	gcggcagggt	cggaacagga	gagcgcacga	4080
gggagcttcc	agggggaaac	gcctgggtatc	tttatagtcc	tgtcggggtt	cgccacctct	4140
gacttgagcg	tcgattttttg	tgatgctcgt	cagggggggcg	gagcctatgg	aaaaacgcca	4200
gcaacgcggc	cttttttacgg	ttcctggcct	tttgctggcc	ttttgctcac	atgttctttc	4260
ctgcgttatc	cctgatttct	gtggataacc	gtattaccgc	ctttgagtga	gctgataccg	4320
ctcgcgcgag	ccgaacgacc	gagcgcagcg	agtcagtgag	cgaggaagcg	gaagagcgcc	4380
tgatgcggta	ttttctcctt	acgcatctgt	gcggtatattc	acaccgcata	tatggtgcac	4440
tctcagtaca	atctgctctg	atgccgcata	gttaagccag	tataactcct	gctatcgcta	4500
cgtgactggg	tcatggctgc	gccccgacac	ccgccaacac	ccgctgacgc	gccctgacgg	4560
gcttgtctgc	tcccggcatc	cgcttacaga	caagctgtga	ccgtctccgg	gagctgcatg	4620
tgtcagaggt	tttcaccgtc	atcaccgaaa	cgcgcgaggg	agctgcggta	aagctcatca	4680

gcgtggtcgt gaagcgattc acagatgtct gcctgttcat ccgcgtccag ctcgttgagt 4740  
ttctccagaa gcgttaatgt ctggcttctg ataaagcggg ccatgttaag ggcggttttt 4800  
tcctgttttg tcaactgatgc ctccgtgtaa gggggatttc tgttcatggg ggtaatgata 4860  
ccgatgaaac gagagaggat gctcacgata cgggttactg atgatgaaca tgccccgtta 4920  
ctggaacgtt gtgagggtaa acaactggcg gtatggatgc ggcgggacca gagaaaaatc 4980  
actcagggtc aatgccagcg cttcgttaat acagatgtag gtgttccaca gggtagccag 5040  
cagcatcctg cgatgcagat ccggaacata atgggtgcagg gcgctgactt ccgcgtttcc 5100  
agactttacg aaacacggaa accgaagacc attcatgttg ttgctcaggt cgcagacgtt 5160  
ttgcagcagc agtcgcttca cgttcgctcg cgtatcggtg attcattctg ctaaccagta 5220  
aggcaacccc gccagcctag ccgggtcctc aacgacagga gcacgatcat gcgcaccctg 5280  
ggccaggacc caacgctgcc cgagatgcgc cgcgtgcggc tgetggagat ggcggaacgcg 5340  
atggatatgt tctgccaagg gttggtttgc gcattcacag ttctccgcaa gaattgattg 5400  
gctccaattc ttggagtggg gaatccgtta gcgaggtgcc gccggcttcc attcaggtcg 5460  
aggtggcccc gctccatgca ccgcgacgca acgcggggag gcagacaagg tatagggcgg 5520  
cgcctacaat ccatgccaac ccgttccatg tgctcgccga ggcggcataa atcgccgtga 5580  
cgatcagcgg tccagtgate gaagttagge tggtaagagc cgcgagcgat ccttgaagct 5640  
gtccctgatg gtcgtcatct acctgcctgg acagcatggc ctgcaacgcg ggcatcccga 5700  
tgccgccgga agcgagaaga atcataatgg ggaaggccat ccagcctcgc gtcgcgaacg 5760  
ccagcaagac gtagcccagc gcgtcggccg ccatgccggc gataatggcc tgcttctcgc 5820  
cgaaacgttt ggtggcgga ccagtacga aggettgagc gagggcggtc aagattccga 5880  
ataccgcaag cgacaggccg atcatcgteg cgtccagcg aaagcgggtc tcgccgaaaa 5940  
tgacccagag cgctgccggc acctgtccta cgagttgcat gataaagaag acagtcataa 6000  
gtgcggcgac gatagtcatg ccccgcgccc accggaagga gctgactggg ttgaaggctc 6060  
tcaagggcac cggtcgatcg acgctctccc ttatgcgact cctgcattag gaagcagccc 6120  
agtagtaggt tgaggccgtt gagcaccgcc gccgcaagga atgggtgcatg caaggagatg 6180  
gcgcccacaa gtcccccgcc cacggggcct gccaccatac ccacgccgaa acaagcgctc 6240  
atgagccccg agtggcgagc ccga 6264

<210> 152

<211> 6961

<212> DNA

<213> pDEST24

<220>

<221> gene

<222> (71)..(195)

<223> attR1

<220>

<221> gene

<222> (304)..(963)

<223> CmR

<220>

<221> gene

<222> (1083)..(1167)

<223> inactivated ccdA

<220>

<221> gene

<222> (1305)..(1610)

<223> ccdB

<220>

<221> gene

<222> (1651)..(1775)

<223> attR2

<220>

<221> gene

<222> (1783)..(2451)

<223> GST



<220>

<221> gene

<222> (3181)..(4041)

<223> ampR

<220>

<221> gene

<222> (4190)..(4829)

<223> ori

<400> 152

atcgagatct cgatcccgcg aaattaatac gactcactat agggagacca caacgggtttc	60
cctctagatc acaagtttgt acaaaaaagc tgaacgagaa acgtaaaatg atataaatat	120
caatatatta aattagattt tgcataaaaa acagactaca taatactgta aaacacaaca	180
tatccagtca ctatggcggc cgcattaggg accccaggct ttacacttta tgcttcgggc	240
tcgtataatg tgtggatttt gagttaggat ccggcgagat tttcaggagc taaggaagct	300
aaaatggaga aaaaaatcac tggatatacc accgttgata tatcccaatg gcatcgtaaa	360
gaacattttt aggcatttca gtcagttgct caatgtacct ataaccagac cgttcagctg	420
gatattacgg ccttttttaa gaccgtaaag aaaaataagc acaagtttta tccggccttt	480
attcacattc ttgcccgcct gatgaatgct catccggaat tccgtatggc aatgaaagac	540
ggtgagctgg tgatatggga tagtgttcac ccttgttaca ccgttttcca tgagcaaact	600
gaaacgtttt catcgctctg gagtgaatac cagcagcatt tccggcagtt tctacacata	660
tattcgcaag atgtggcgtg ttacggtgaa aacctggcct atttccttaa aggggtttatt	720
gagaatatgt ttttcgtctc agccaatccc tgggtgagtt tcaccagttt tgatttaaac	780
gtggccaata tggacaactt cttcgcccc gttttcacca tgggcaaata ttatacgcaa	840
ggcgacaagg tgctgatgcc gctggcgatt caggttcatc atgccgtctg tgatggcttc	900
catgtcggca gaatgcttaa tgaattacaa cagtactgcg atgagtggca gggcggggcg	960
taaacgcgtg gatccggctt actaaaagcc agataacagt atgcgtattt gcgcgctgat	1020
ttttgcggta taagaatata tactgatatg tatacccgaa gtatgtcaaa aagaggtgtg	1080
ctatgaagca gcgtattaca gtgacagttg acagcgacag ctatcagttg ctcaaggcat	1140
atatgatgtc aatatctccg gtctggtaag cacaaccatg cagaatgaag cccgtcgtct	1200
gcgtgccgaa cgctggaaag cggaaaatca ggaagggatg gctgaggtcg cccggtttat	1260

tgaaatgaac ggctctttttg ctgacgagaa cagggactgg tgaaatgcag ttttaaggttt 1320  
acacctataa aagagagagc cgttatcgtc tgtttgtgga tgtacagagt gatattattg 1380  
acacgccccg gcgacggatg gtgatcccc tggccagtgc acgtctgctg tcagataaag 1440  
tctcccgta actttaccg gtggtgcata tcggggatga aagctggcgc atgatgacca 1500  
ccgatatggc cagtgtgccg gtctccgtta tcggggaaga agtggctgat ctcagccacc 1560  
gcgaaaatga catcaaaaac gccattaacc tgatgttctg gggaatataa atgtcaggct 1620  
cccttataca cagccagtct gcaggtcgac catagtact ggatatgttg tgttttacag 1680  
tattatgtag tctgtttttt atgcaaaatc taatttaata tattgatatt tatatcattt 1740  
tacgtttctc gttcagcttt cttgtacaaa gtggtgatta tgtccctat actaggttat 1800  
tggaaaatta agggccttgt gcaaccact cgacttcttt tggaatatct tgaagaaaaa 1860  
tatgaagagc atttgtatga gcgcgatgaa ggtgataaat ggcgaaacaa aaagtttgaa 1920  
ttgggttttg agtttcccaa tcttccttat tatattgatg gtgatgttaa attaacacag 1980  
tctatggcca tcatacgta tatagctgac aagcacaaca tgttgggtgg ttgtccaaaa 2040  
gagcgtgcag agatttcaat gcttgaagga gcggttttgg atattagata cgggtgtttcg 2100  
agaattgcat atagtaaaga ctttgaaact ctcaaagttg attttcttag caagctacct 2160  
gaaatgctga aaatgttcga agatcgttta tgtcataaaa catatttaaa tggatgatcat 2220  
gtaacccatc ctgacttcat gttgtatgac gctcttgatg ttgttttata catggaccca 2280  
atgtgcctgg atgcgttccc aaaattagtt tgttttaaaa aacgtattga agctatccca 2340  
caaattgata agtacttgaa atccagcaag tatatagcat ggcctttgca gggctggcaa 2400  
gccacgtttg gtggtggcga ccatacctca aaatcggatc tggttccgcg tccatgggga 2460  
tccggtgct aacaaagccc gaaaggaagc tgagttggct gctgccaccg ctgagcaata 2520  
actagcataa ccccttgggg cctctaaacg ggtcttgagg ggttttttgc tgaaaggagg 2580  
aactatatcc ggatatccac aggacgggtg tggtcgccat gatcgctag tcgatagtgg 2640  
ctccaagtag cgaagcgagc aggactgggc ggcggccaaa gcggtcggac agtgctccga 2700  
gaacgggtgc gcatagaaat tgcataacg catatagcgc tagcagcacg ccatagtgc 2760  
tggcgtgct gtcggaatgg acgatatccc gcaagaggcc cggcagtacc ggcataacca 2820  
agcctatgcc tacagcatcc agggtgacgg tgccgaggat gacgatgagc gcattgttag 2880  
atttcataca cgggtgcctga ctgcgttagc aatttaactg tgataaacta ccgcattaaa 2940  
gcttatcgat gataagctgt caaacatgag aattcttgaa gacgaaaggg cctcgtgata 3000  
cgcctatttt tatagggtta tgtcatgata ataatggttt cttagacgtc aggtggcact 3060  
tttcggggaa atgtgcgcgg aaccctatt tgtttatttt tctaaatata ttcaaatatg 3120

B1

tatccgctca	tgagacaata	accctgataa	atgcttcaat	aatattgaaa	aaggaagagt	3180
atgagtatcc	aacatttccg	tgctgccctt	attccctttt	ttgcggcatt	ttgccttcct	3240
gtttttgctc	accagaaaac	gctggtgaaa	gtaaaagatg	ctgaagatca	gttgggtgca	3300
cgagtggggt	acatcgaact	ggatctcaac	agcggtaaga	tccttgagag	ttttcgcccc	3360
gaagaacgtt	ttccaatgat	gagcactttt	aaagttctgc	tatgtggcgc	ggtattatcc	3420
cgtgttgacg	ccgggcaaga	gcaactcggg	cgcgcatac	actattctca	gaatgacttg	3480
gttgagtact	caccagtcac	agaaaagcat	cttacggatg	gcatgacagt	aagagaatta	3540
tgacgtgctg	ccataaccat	gagtataaac	actgcggcca	acttacttct	gacaacgata	3600
ggaggaccga	aggagctaac	cgcttttttg	cacaacatgg	gggatcatgt	aactcgcctt	3660
gatcgttggg	aaccggagct	gaatgaagcc	ataccaaacg	acgagcgtga	caccacgatg	3720
cctgcagcaa	tggcaacaac	gttgcgcaaa	ctattaactg	gcgaactact	tactctagct	3780
tcccggcaac	aattaataga	ctggatggag	gcggataaag	ttgcaggacc	acttctgcgc	3840
tcggcccttc	cggttggtg	gtttattgct	gataaatctg	gagccggtga	gcgtgggtct	3900
cgcggtatca	ttgcagcact	ggggccagat	ggtaagccct	cccgtatcgt	agttatctac	3960
acgacgggga	gtcaggcaac	tatggatgaa	cgaaatagac	agatcgctga	gataggtgcc	4020
tactgatta	agcattggta	actgtcagac	caagtttact	catatatact	ttagattgat	4080
ttaaaacttc	atttttaatt	taaaaggatc	taggtgaaga	tcctttttga	taatctcatg	4140
acaaaaatcc	cttaacgtga	gttttcgttc	cactgagcgt	cagaccccg	agaaaagatc	4200
aaaggatctt	cttgagatcc	tttttttctg	cgcgtaatct	gctgcttgca	aacaaaaaaa	4260
ccaccgctac	cagcggtggt	ttgtttgccg	gatcaagagc	taccaactct	ttttccgaag	4320
gtaactggct	tcagcagagc	gcagatacca	aatactgtcc	ttctagtgtg	gccgtagtta	4380
ggccaccact	tcaagaactc	tgtagcaccg	cctacatacc	tcgctctgct	aatcctgtta	4440
ccagtggctg	ctgccagtgg	cgataagtcg	tgtcttaccg	ggttggactc	aagacgatag	4500
ttaccgggata	aggcgcagcg	gtcgggctga	acgggggggt	cgtgcacaca	gccagcttg	4560
gagcgaacga	cctacaccga	actgagatac	ctacagcgtg	agctatgaga	aagcgccacg	4620
cttcccgaag	ggagaaaggc	ggacaggtat	ccggtaagcg	gcagggtcgg	aacaggagag	4680
cgcacgaggg	agcttccagg	gggaaacgcc	tggtatcttt	atagtcctgt	cgggtttcgc	4740
cacctctgac	ttgagcgtcg	atttttgtga	tgtcgtcag	gggggcggag	cctatggaaa	4800
aacgccagca	acgcggcctt	tttacggttc	ctggcctttt	gctggccttt	tgctcacatg	4860
ttctttcctg	cgttatcccc	tgattctgtg	gataaccgta	ttaccgcctt	tgagtgagct	4920
gataccgctc	gccgcagccg	aacgaccgag	cgcagcaggt	cagtgagcga	ggaagcggaa	4980

gagcgcctga	tgcggtat	tctccttacg	catctgtgcg	gtatttcaca	ccgcatatat	5040
ggtgcactct	cagtacaatc	tgctctgatg	ccgcatagtt	aagccagtat	acactccgct	5100
atcgctacgt	gactgggtca	tggtgcgcgc	ccgacacccg	ccaacacccg	ctgacgcgc	5160
ctgacgggct	tgtctgctcc	cgccatccgc	ttacagacaa	gctgtgaccg	tctccgggag	5220
ctgcatgtgt	cagaggtttt	caccgtcatc	accgaaacgc	gcgaggcagc	tgcggtaaag	5280
ctcatcagcg	tggtcgtgaa	gcgattcaca	gatgtctgcc	tgttcatccg	cgccagctc	5340
gttgagtttc	tccagaagcg	ttaatgtctg	gcttctgata	aagcgggcca	tgtaagggc	5400
ggttttttcc	tggttggtca	ctgatgcctc	cgtgtaaggg	ggatttctgt	tcatgggggt	5460
aatgataccg	atgaaacgag	agaggatgct	cacgatacgg	gttactgatg	atgaacatgc	5520
ccggttactg	gaacgttgtg	agggtaaaca	actggcggta	tggatgcggc	gggaccagag	5580
aaaaatcact	cagggccaat	gccagcgctt	cgttaataca	gatgtaggtg	ttccacaggg	5640
tagccagcag	catcctgcga	tgcagatccg	gaacataatg	gtgcagggcg	ctgacttccg	5700
cgtttccaga	ctttacgaaa	cacggaaacc	gaagaccatt	catgttggtg	ctcaggtcgc	5760
agacgttttg	cagcagcagt	cgcttcacgt	tcgctcgcgt	atcggtgatt	cattctgcta	5820
accagtaagg	caaccccgcc	agcctagccg	ggtcctcaac	gacaggagca	cgatcatgcg	5880
cacccgtagc	caggacccaa	cgctgcccga	gatgcgcgcg	gtgcggctgc	tggagatggc	5940
ggacgcgatg	gatatgttct	gccaaagggt	ggtttgcgca	ttcacagttc	tccgcaagaa	6000
ttgattggct	ccaattcttg	gagtggtgaa	tccgttagcg	aggtgccgcg	ggcttcatt	6060
caggtcgagg	tggcccggt	ccatgcaccg	cgacgcaacg	cggggaggca	gacaaggtat	6120
agggcggcgc	ctacaatcca	tgccaacccg	ttccatgtgc	tcgccgaggc	ggcataaatc	6180
gccgtgacga	tcagcgttcc	agtgatcgaa	gttaggctgg	taagagccgc	gagcgatcct	6240
tgaagctgtc	cctgatggtc	gtcatctacc	tgcctggaca	gcatggcctg	caacgcgggc	6300
atcccgatgc	cgccggaagc	gagaagaatc	ataatgggga	aggccatcca	gcctcgcgtc	6360
gcgaacgcca	gcaagacgta	gccagcgcg	tcggccgcca	tgccggcgat	aatggcctgc	6420
ttctcgccga	aacgttttgt	ggcgggacca	gtgacgaagg	cttgagcgag	ggcgtgcaag	6480
attccgaata	ccgcaagcga	caggccgatc	atcgtcgcgc	tccagcgaaa	gcggtcctcg	6540
ccgaaaatga	cccagagcgc	tgccggcacc	tgctctacga	gttgcatgat	aaagaagaca	6600
gtcataagtg	cggcgacgat	agtcatgccc	cgcgcccacc	ggaaggagct	gactgggttg	6660
aaggctctca	agggcatcgg	tcgatcgacg	ctctccctta	tgcgactcct	gcattaggaa	6720
gcagcccagt	agtaggttga	ggccgttgag	caccgccgcg	gcaaggaatg	gtgcatgcaa	6780
ggagatggcg	cccaacagtc	ccccggccac	ggggcctgcc	accataccca	cgccgaaaca	6840

```
agcgctcatg agcccggaagt ggcgagcccg atcttcccca tcggtgatgt cggcgatata 6900
ggcgccagca accgcacctg tggcgccggt gatgccggcc acgatgcgtc cggcgtagag 6960
g 6961
```

<210> 153

<211> 6652

<212> DNA

<213> pDEST25

<220>

<221> gene

<222> (720) .. (844)

<223> attR1

<220>

<221> gene

<222> (953) .. (1612)

<223> CmR

<220>

<221> gene

<222> (1732) .. (1816)

<223> inactivated ccdA

<220>

<221> gene

<222> (1954) .. (2259)

<223> ccdB

<220>

<221> gene

<222> (2300) .. (2424)

<223> attR2

<220>

<221> gene

<222> (2432) .. (2794)

<223> trx

<400> 153  
ccggaagcga gaagaatcat aatggggaag gccatccagc ctgcgcgtcgc gaacgccagc 60  
aagacgtagc ccagcgcgtc ggccgccatg ccggcgataa tggcctgctt ctgcgccgaaa 120  
cgtttggtgg cgggaccagt gacgaaggct tgagcgaggg cgtgcaagat tccgaatacc 180  
gcaagcgaca ggccgatcat cgtcgcgtc cagcgaaagc ggtcctcgcc gaaaatgacc 240  
cagagcgctg ccggcacctg tcctacgagt tgcattgataa agaagacagt cataagtgcg 300  
gcgacgatag tcatgccccg cgcccaccgg aaggagctga ctgggttgaa ggctctcaag 360  
ggcatcggtc gatcgacgt ctcccttatg cgactcctgc attaggaagc agcccagtag 420  
taggttgagg ccgttgagca ccgccgccgc aaggaatggt gcatgcaagg agatggcgcc 480  
caacagtcct ccggccacgg ggcttgcac cataccacg ccgaaacaag cgctcatgag 540  
cccgaagtgg cgagcccgat cttccccatc ggtgatgtcg gcgatatagg cgccagcaac 600  
cgcacctgtg gcgccggtga tgccggccac gatgcgtccg gcgtagagga tcgagatctc 660  
gatccccgca aattaatacg actcactata gggagaccac aacggtttcc ctctagatca 720  
caagtttgta caaaaaagct gaacgagaaa cgtaaaatga tataaatatc aatatattaa 780  
attagatttt gcataaaaaa cagactacat aatactgtaa aacacaacat atccagtcac 840  
tatggcgccc gcattaggca cccagggctt tacactttat gcttcgggct cgtataatgt 900  
gtggattttg agttaggatc cggcgagatt ttcaggagct aaggaagcta aaatggagaa 960  
aaaaatcact ggatatacca ccgttgatat atcccaatgg catcgtaaag aacattttga 1020  
ggcatttcag tcagttgtc aatgtacct taaccagacc gttcagctgg atattacggc 1080  
ctttttaaag accgtaaaga aaaataagca caagttttat ccggccttta ttcacattct 1140  
tgcccgctg atgaatgtc atccggaatt ccgtatggca atgaaagacg gtgagctggt 1200  
gatatgggat agtgttcacc cttgttacac cgttttccat gagcaaactg aaacgttttc 1260  
atcgctctgg agtgaatacc acgacgattt ccggcagttt ctacacatat attcgcaaga 1320  
tgtggcgtgt tacgggtgaa acctggccta tttccctaaa gggtttattg agaatatgtt 1380  
tttcgtctca gccaatccct gggtaggttt caccagtttt gatttaaacg tggccaatat 1440

ggacaacttc	ttcgcccccg	ttttcaccat	gggcaaatat	tatacgcaag	gcgacaaggt	1500
gctgatgccg	ctggcgattc	aggttcatca	tgccgtctgt	gatggcttcc	atgtcggcag	1560
aatgcttaat	gaattacaac	agtactgcga	tgagtggcag	ggcggggcgt	aaacgcgtgg	1620
atccggctta	ctaaaagcca	gataacagta	tgcgatattg	cgcgctgatt	tttgcggtat	1680
aagaatatat	actgatatgt	ataccggaag	tatgtcaaaa	agaggtgtgc	tatgaagcag	1740
cgtattacag	tgacagttga	cagcgacagc	tatcagttgc	tcaaggcata	tatgatgtca	1800
atatctccgg	tctggtaagc	acaaccatgc	agaatgaagc	ccgtcgtctg	cgtgccgaac	1860
gctggaaaagc	ggaaaatcag	gaagggatgg	ctgaggtcgc	ccggtttatt	gaaatgaacg	1920
gctcttttgc	tgacgagaac	agggactggg	gaaatgcagt	ttaaggttta	cacctataaa	1980
agagagagcc	gttatcgtct	gtttgtggat	gtacagagtg	atattattga	cacgcccggg	2040
cgacgggatgg	tgatccccct	ggccagtgca	cgtctgctgt	cagataaagt	ctcccgtgaa	2100
ctttaccccg	tggtgcata	cggggatgaa	agctggcgca	tgatgaccac	cgatatggcc	2160
agtgtgccgg	tctccgttat	cggggaagaa	gtggctgata	tcagccaccg	cgaaaatgac	2220
atcaaaaacg	ccattaacct	gatgttctgg	ggaatataaa	tgtcaggctc	ccttatacac	2280
agccagtctg	caggtcgacc	atagtgactg	gatatgttgt	gttttacagt	attatgtagt	2340
ctgtttttta	tgcaaaatct	aatttaatat	attgatattt	atatcatttt	acgtttctcg	2400
ttcagctttc	ttgtacaaag	tggtgattat	gagcgataaa	attattcacc	tgactgacga	2460
cagttttgac	acggatgtac	tcaaagcgga	cggggcgatc	ctcgtcgatt	tctgggcaga	2520
gtgggtgcgg	ccgtgcaaaa	tgatcgcccc	gattctggat	gaaatcgctg	acgaatatca	2580
gggcaaactg	accgttgcaa	aactgaacat	cgatcaaaac	cctggcactg	cgccgaaata	2640
tggcacccgt	ggtatccccg	ctctgctgct	gttcaaaaac	ggtgaagtgg	cggcaaccaa	2700
agtgggtgca	ctgtctaaag	gtcagttgaa	agagttcctc	gacgctaacc	tggccgggttc	2760
tggttctggg	gatgacgatg	acaaggtacc	cggggatcga	tccggctgct	aacaaagccc	2820
gaaaggaagc	tgagttggct	gctgccaccg	ctgagcaata	actagcataa	ccccttgggg	2880
cctctaaacg	ggtcttgagg	ggttttttgc	tgaaaggagg	aactatatcc	ggatatccac	2940
aggacgggtg	tggtcgccat	gatcgcgtag	tcgatagtgg	ctccaagtag	cgaagcgagc	3000
aggactgggc	ggcggccaaa	gcggtcggac	agtgtctccg	gaacgggtgc	gcatagaaat	3060
tgcatcaacg	catatagcgc	tagcagcacg	ccatagtgac	tggcgatgct	gtcggaatgg	3120
acgatatccc	gcaagaggcc	cggcagtacc	ggcataacca	agcctatgcc	tacagcatcc	3180
agggtgacgg	tgccgaggat	gacgatgagc	gcattgttag	atttcataca	cgggtgcctga	3240
ctgcgttagc	aatttaactg	tgataaacta	ccgcattaaa	gcttatcgat	gataagctgt	3300

caaacatgag	aattcttgaa	gacgaaaggg	cctcgtgata	cgcctatddd	tataggdtaa	3360
tgatcatgata	ataatggddd	cttagacgtc	aggtggcact	tttcggggaa	atgtgcgcgg	3420
aaccctatt	tgdddattdd	tctaaataca	ttcaaatatg	tatccgtca	tgagacaata	3480
accctgataa	atgcttcaat	aatattgaaa	aaggaagagt	atgagtattc	aacatttccg	3540
tgtcgccctt	attccctddd	ttgcggcatt	ttgccttctt	gtttttgctc	accagaaaac	3600
gctgggtgaaa	gtaaaagatg	ctgaagatca	gttgggtgca	cgagtgggtt	acatcgaact	3660
ggatctcaac	agcggtaaga	tccttgagag	ttttcgcctc	gaagaacgtt	ttccaatgat	3720
gagcactddd	aaagttdctg	tatgtggcgc	ggtattatcc	cgtgttgacg	ccgggcaaga	3780
gcaactcggg	cgccgcatac	actattctca	gaatgacttg	gttgagtact	caccagtcac	3840
agaaaagcat	cttacggatg	gcatgacagt	aagagaatta	tgcatgtctg	ccataaccat	3900
gagtataac	actgcggcca	acttacttct	gacaacgatc	ggaggaccga	aggagctaac	3960
cgttdtdtdt	cacaacatgg	gggatcatgt	aactcgcctt	gatcgttggg	aaccggagct	4020
gaatgaagcc	ataccaaacg	acgagcgtga	caccacgatg	cctgcagcaa	tggaacaac	4080
gttgcgcaaa	ctattaactg	gcgaactact	tactctagct	tcccggcaac	aattaataga	4140
ctggatggag	gcggataaag	ttgcaggacc	acttctgcgc	tcggcccttc	cggctggctg	4200
gtttattgct	gataaatctg	gagccgggtga	gcgtgggtct	cgcggtatca	ttgcagcact	4260
ggggccagat	ggtaagccct	cccgtatcgt	agttatctac	acgacgggga	gtcaggcaac	4320
tatggatgaa	cgaaatagac	agatcgtctga	gatagggtgc	tcactgatta	agcattggta	4380
actgtcagac	caagtttact	catatatact	ttagattgat	ttaaaacttc	atttdttaatt	4440
taaaaggatc	taggtgaaga	tccttdtdtga	taatctcatg	acaaaaatcc	cttaacgtga	4500
gttttcgttc	cactgagcgt	cagaccccg	agaaaagatc	aaaggatctt	cttgagatcc	4560
tdtdtdtdtctg	cgcgtaatct	gctgcttgca	aacaaaaaaa	ccaccgctac	cagcgggtgg	4620
ttgtttgccg	gatcaagagc	taccaactct	tdtdccgaag	gtaactggct	tcagcagagc	4680
gcagatacca	aatactgtcc	ttctagtgtga	gccgtagtta	ggccaccact	tcaagaactc	4740
tgtagcaccg	cctacatacc	tcgctctgct	aatcctgtta	ccagtggctg	ctgccagtgg	4800
cgataagtgc	tgtcttaccg	ggttggactc	aagacgatag	ttaccggata	aggcgcagcg	4860
gtcgggctga	acgggggggt	cgtgcacaca	gccagcttg	gagcgaacga	cctacaccga	4920
actgagatac	ctacagcgtg	agctatgaga	aagcgccacg	cttcccgaag	ggagaaaggc	4980
ggacaggtat	ccggtaaagc	gcagggtcgg	aacaggagag	cgcacgaggg	agcttccagg	5040
gggaaacgcc	tggtatcttd	atagtcctgt	cgggttdtgc	cacctctgac	ttgagcgtcg	5100
atttdtdtga	tgctcgtcag	gggggcggag	cctatggaaa	aacgccagca	acgcggcctt	5160



tttacgggttc ctggcctttt gctggccttt tgetcacatg ttcttttctg cgttatcccc 5220  
tgattctgtg gataaccgta ttaccgcctt tgagtgaagt gataccgctc gccgcagccg 5280  
aacgaccgag cgcagcaggt cagtgaagca ggaagcggaa gagcgctga tgcgggtattt 5340  
tctccttacg catctgtgcg gtatttcaca ccgcataatat ggtgcactct cagtacaatc 5400  
tgctctgatg ccgcatagtt aagccagtat aactccgct atcgctacgt gactgggtca 5460  
tggctgcgcc ccgacacccg ccaacacccg ctgacgcgcc ctgacgggct tgtctgctcc 5520  
cggcatccgc ttacagacaa gctgtgaccg tctccgggag ctgcatgtgt cagaggtttt 5580  
caccgtcatc accgaaacgc gcgaggcagc tgcggtaaag ctcatcagcg tggtcgtgaa 5640  
gcgattcaca gatgtctgcc tgttcacccg cgtccagctc gttgagtttc tccagaagcg 5700  
ttaatgtctg gcttctgata aagcgggcca tgttaagggc ggttttttcc tgtttggtca 5760  
ctgatgcctc cgtgtaaggg ggatttctgt tcatgggggt aatgataccg atgaaacgag 5820  
agaggatgct cacgatacgg gttactgatg atgaacatgc ccggttactg gaacgttgtg 5880  
agggtaaaca actggcggta tggatgcggc gggaccagag aaaaatcact cagggtcaat 5940  
gccagcgctt cgttaataca gatgtaggtg ttccacaggg tagccagcag catcctgcga 6000  
tgcagatccg gaacataatg gtgcagggcg ctgacttccg cgtttccaga ctttacgaaa 6060  
cacggaaaacc gaagaccatt catgttggtg ctgaggtcgc agacgttttg cagcagcagt 6120  
cgcttcacgt tcgctcgcgt atcggtgatt cattctgcta accagtaagg caaccccgcc 6180  
agcctagccg ggtcctcaac gacaggagca cgatcatgcg cacccggtggc caggacccaa 6240  
cgctgcccga gatgcgcgcg gtgcggctgc tggagatggc ggacgcgatg gatatgttct 6300  
gccaaggggt gggttgcgca ttcacagttc tccgcaagaa ttgattggct ccaattcttg 6360  
gagtggtgaa tccgttagcg aggtgccgcc ggcttccatt caggtcgagg tggccccggt 6420  
ccatgcaccg cgacgcaacg cggggaggca gacaaggat agggcggcgc ctacaatcca 6480  
tgccaacccg ttccatgtgc tcgccagggc ggcataaatc gccgtgacga tcagcggctc 6540  
agtgatcgaa gttaggctgg taagagccgc gagcgatcct tgaagctgtc cctgatggtc 6600  
gtcatctacc tgcttgaca gcatggcctg caacgcgggc atcccgatgc cg 6652

<210> 154

<211> 7481

<212> DNA

<213> pDEST26

<220>

<221> gene

<222> (492)..(509)

<223> his6

<220>

<221> gene

<222> (519)..(619)

<223> attR1

<220>

<221> gene

<222> (752)..(1411)

<223> CmR

<220>

<221> gene

<222> (1531)..(1615)

<223> inactivated ccdA

<220>

<221> gene

<222> (1753)..(2058)

<223> ccdB

<220>

<221> gene

<222> (2099)..(2223)

<223> attR2

<220>

<221> gene

<222> (2409)..(2771)

<223> SV40 polyA

<220>

<221> gene

<222> (2966)..(3421)

<223> fl intergenic region

<220>

<221> gene

<222> (3485)..(3903)

<223> SV40 promoter

<220>

<221> gene

<222> (3948)..(4742)

<223> neo

<220>

<221> gene

<222> (4806)..(4854)

<223> polyA

<220>

<221> gene

<222> (5265)..(6125)

<223> Apr

<220>

<221> gene

<222> (5274)..(6913)

<223> ori

<220>

<221> gene

<222> (385) .. (7344)

<223> CMV promoter

<400> 154

gtaaactgcc cacttggcag tacatcaagt gtatcatatg ccaagtacgc cccctattga	60
cgtcaatgac ggtaaatggc ccgcctggca ttatgcccgag tacatgacct tatgggactt	120
tcctacttgg cagtacatct acgtattagt catcgctatt accatgggtga tgcgggttttg	180
gcagtacatc aatgggcggt gatagcgggt tgactcacgg ggatttccaa gtctccaccc	240
cattgacgtc aatgggagtt tgttttggca ccaaaatcaa cgggactttc caaaatgtcg	300
taacaactcc gcccattga cgcaaatggg cggtaggcgt gtacgggtggg aggtctatat	360
aagcagagct cgttttagtga accgtcagat cgctggaga cgccatccac gctgttttga	420
cctccataga agacaccggg accgatccag cctccggact ctagcctagg ccgcggacca	480
tggcgtacta ccatcaccat caccatcact ctagatcaac aagtttgtac aaaaaagctg	540
aacgagaaac gtaaatgat ataaatatca atatattaaa ttagattttg cataaaaaac	600
agactacata atactgtaaa acacaacata tccagtcact atggcgggcg cattaggcac	660
cccaggcttt acactttatg cttccggctc gtataatgtg tggattttga gttaggatcc	720
ggcgagattt tcaggagcta aggaagctaa aatggagaaa aaaatcactg gatataccac	780
cgttgatata tcccaatggc atcgtaaaga acattttgag gcatttcagt cagttgctca	840
atgtacctat aaccagaccg ttcagctgga tattacggcc tttttaaaga ccgtaaagaa	900
aaataagcac aagttttatc cggcctttat tcacattctt gcccgcctga tgaatgctca	960
tccggaattc cgtatggcaa tgaaagacgg tgagctggtg atatgggata gtgttcaccc	1020
ttgttacacc gttttccatg agcaaactga aacgttttca tcgctctgga gtgaatacca	1080
cgacgatttc cggcagtttc tacacatata ttcgcaagat gtggcgtggt acggtgaaaa	1140
cctggcctat ttcctaaag ggtttattga gaatatgttt ttcgtctcag ccaatccctg	1200
ggtgagtttc accagttttg atttaaacgt ggccaatatg gacaacttct tcgccccgt	1260
tttcaccatg ggcaaatatt atacgcaagg cgacaagggt ctgatgccgc tggcgattca	1320
ggttcatcat gccgtctgtg atggcttcca tgcgggcaga atgcttaatg aattacaaca	1380
gtactgcat gagtggcagg gcggggcgta aagatctgga tccggcttac taaaagccag	1440

ataacagtat gcgtatttgc gcgctgattt ttgcggtata agaatatata ctgatatgta 1500  
taccgaagt atgtcaaaaa gaggtgtgct atgaagcagc gtattacagt gacagttgac 1560  
agcgacagct atcagttgct caaggcatat atgatgtcaa tatctccggt ctggtaagca 1620  
caaccatgca gaatgaagcc cgtcgtctgc gtgccgaacg ctggaaagcg gaaaatcagg 1680  
aagggatggc tgaggtcgcc cggtttattg aaatgaacgg ctcttttgct gacgagaaca 1740  
gggactgggtg aaatgcagtt taaggtttac acctataaaa gagagagccg ttatcgtctg 1800  
tttgtggatg tacagagtga tattattgac acgcccgggc gacggatggt gatccccctg 1860  
gccagtgcac gtctgctgtc agataaagtc tcccgatgaac ttaccggt ggtgcatatc 1920  
ggggatgaaa gctggcgcat gatgaccacc gatatggcca gtgtgccggt ctccggtatc 1980  
ggggaagaag tggctgatct cagccaccgc gaaaatgaca tcaaaaacgc cattaacctg 2040  
atgttctggg gaatataaat gtcaggctcc cttatacaca gccagtctgc aggtcgacca 2100  
tagtgactgg atatgttggtg ttttacagta ttatgtagtc tgttttttat gcaaaatcta 2160  
atttaatatata ttgatattta tatcatttta cgtttctcgt tcagctttct tgtacaaagt 2220  
ggttgatcgc gtgcatgca cgtcatagct ctctccctat agtgagtcgt attataagct 2280  
aggcactggc cgtcgtttta caacgtcgtg actgggaaaa ctgctagctt gggatctttg 2340  
tgaaggaacc ttacttctgt ggtgtgacat aattggacaa actacctaca gagatttaaa 2400  
gctctaaggt aaatataaaa tttttaagtg tataatgtgt taaactagct gcatatgctt 2460  
gctgcttgag agttttgctt actgagtatg atttatgaaa atattataca caggagctag 2520  
tgatttctaat tgtttgtgta ttttagattc acagtcccaa ggctcatttc aggccctca 2580  
gtcctcacag tctgttcattg atcataatca gccataccac atttgtagag gttttacttg 2640  
cttttaaaaaa cctccacac ctccccctga acctgaaaca taaaatgaat gcaattgttg 2700  
ttgttaactt gtttattgca gcttataatg gttacaaata aagcaatagc atcaciaaatt 2760  
tcacaaataa agcatttttt tcaactgcatt ctagttgtgg tttgtccaaa ctcatcaatg 2820  
tatcttatca tgtctggatc gatcctgcat taatgaatcg gccaacgcgc ggggagaggc 2880  
ggtttgcgta ttggctggcg taatagcgaa gaggcccgca ccgatcgccc ttcccaacag 2940  
ttgcgcagcc tgaatggcga atgggacgcg ccctgtagcg gcgcattaag cgcggcgggt 3000  
gtggtgggtta cgcgcagcgt gaccgctaca cttgccagcg ccctagcgcc cgctcctttc 3060  
gctttcttcc cttcctttct cgccacgttc gccggctttc cccgtcaagc tctaaatcgg 3120  
gggctccctt tagggttccg atttagtgtt ttacggcacc tcgaccccaa aaaacttgat 3180  
taggggtgatg gttcacgtag tgggccatcg ccctgataga cggtttttcg ccctttgacg 3240  
ttggagtcca cgttctttaa tagtggactc ttgttccaaa ctggaacaac actcaacct 3300

B1

atctcgggtct	attctttttga	tttataaggg	atthttgccga	tttcggccta	ttggttaaaa	3360
aatgagctga	tttaacaaat	atttaacgcg	aattttaaca	aaatattaac	gtttacaatt	3420
tcgcctgatg	cgggtattttc	tccttaacga	tctgtgcggg	atthcacacc	gcatacgcgg	3480
atctgcgcag	caccatggcc	tgaataaacc	tctgaaagag	gaacttggtt	aggtaccttc	3540
tgaggcggaa	agaaccagct	gtggaatgtg	tgtcagttag	gggtgtgaaa	gtccccaggc	3600
tccccagcag	gcagaagtat	gcaaagcatg	catctcaatt	agtcagcaac	caggtgtgga	3660
aagtccccag	gctccccagc	aggcagaagt	atgcaaagca	tgcattctca	ttagtcagca	3720
accatagtc	cgcctctaac	tccgcctatc	cgcctcctaa	ctccgcctag	ttccgcctat	3780
tctccgcccc	atggctgact	aatttttttt	atthtatgcag	aggccgaggc	cgcctcggcc	3840
tctgagctat	tccagaagta	gtgaggaggc	ttttttggag	gcctaggctt	ttgcaaaaag	3900
cttgattctt	ctgacacaac	agtctcgaa	ttaaggctag	agccaccatg	attgaacaag	3960
atggattgca	cgcaggttct	cgggcgcctt	gggtggagag	gctattcggc	tatgactggg	4020
cacaacagac	aatcggctgc	tctgatgccg	cgtgttccg	gctgtcagcg	caggggcgc	4080
cggttctttt	tgtcaagacc	gacctgtccg	gtgccttgaa	tgaactgcag	gacgaggcag	4140
cgcggctatc	gtggctggcc	acgacgggcg	ttccttgccg	agctgtgctc	gacgttgtca	4200
ctgaagcggg	aagggactgg	ctgctattgg	gcgaagtgcc	ggggcaggat	ctcctgtcat	4260
ctcaccttgc	tcctgcccag	aaagtatcca	tcattggctga	tgcaatgcgg	cggctgcata	4320
cgttgatcc	ggctacctgc	ccattcgacc	accaagcgaa	acatcgcatc	gagcgagcac	4380
gtactcggat	ggaagccggg	cttgctgac	aggatgatct	ggacgaagag	catcaggggc	4440
tcgcgccagc	cgaactgttc	gccaggctca	aggcgcgc	gcccgcggc	gaggatctcg	4500
tcgtgacca	tggcgatgcc	tgcttgccga	atatcatggg	ggaaaatggc	cgtttttctg	4560
gattcatcga	ctgtggccgg	ctgggtgtgg	cggaccgcta	tcaggacata	gcgttggtca	4620
cccgtgatat	tgctgaagag	cttggcggcg	aattgggtga	cgccttcctc	gtgctttacg	4680
gtatcgccgc	tcccgatctg	cagcgcacgc	ccttctatcg	ccttcttgac	gagttcttct	4740
gagcgggact	ctgggggttc	aaatgaccga	ccaagcgacg	cccaacctgc	catcacgatg	4800
gccgcaataa	aatatcttta	ttttcattac	atctgtgtgt	tggttttttg	tgtgaatcga	4860
tagcgataag	gatccgcgta	tgggtgactc	tcagtacaat	ctgctctgat	gccgcatagt	4920
taagccagcc	ccgacacccg	ccaacacccg	ctgacgcgcc	ctgacgggct	tgtctgctcc	4980
cggcatccgc	ttacagacaa	gctgtgaccg	tctccggggg	ctgcatgtgt	cagaggtttt	5040
caccgtcatc	accgaaacgc	gcgagacgaa	agggcctcgt	gatacgccta	tttttatagg	5100
ttaatgtcat	gataataatg	gtttcttaga	cgtcagggtg	cacttttcgg	ggaaatgtgc	5160

gcggaacccc	tatttgttta	tttttctaaa	tacattcaaa	tatgtatccg	ctcatgagac	5220
aataaccctg	ataaatgctt	caataatatt	gaaaaaggaa	gagtatgagt	attcaacatt	5280
tccgtgtcgc	ccttattccc	ttttttgcgg	cattttgcct	tectgttttt	gctcaccag	5340
aaacgctggt	gaaagtaaaa	gatgctgaag	atcagttggg	tgcacgagt	ggttacatcg	5400
aactggatct	caacagcggg	aagatccttg	agagttttcg	ccccgaagaa	cgttttccaa	5460
tgatgagcac	ttttaaagtt	ctgctatgtg	gcgcggtatt	atcccgtatt	gacgccgggc	5520
aagagcaact	cggtcgccgc	atacactatt	ctcagaatga	cttggttgag	tactcaccag	5580
tcacagaaaa	gcatcttacg	gatggcatga	cagtaagaga	attatgcagt	gctgccataa	5640
ccatgagtga	taacactgcg	gccaaacttac	ttctgacaac	gatcggagga	ccgaaggagc	5700
taaccgcttt	tttgcaaac	atgggggatc	atgtaactcg	ccttgatcgt	tgggaaccgg	5760
agctgaatga	agccatacca	aacgacgagc	gtgacaccac	gatgcctgta	gcaatggcaa	5820
caacgttgcg	caaactatta	actggcgaa	tacttactct	agcttcccgg	caacaattaa	5880
tagactggat	ggaggcggat	aaagttgcag	gaccacttct	gcgctcgggc	cttcgggctg	5940
gctggtttat	tgctgataaa	tctggagccg	gtgagcgtgg	gtctcgcggt	atcattgcag	6000
cactggggcc	agatggtaag	ccctcccgt	tcgtagtatt	ctacacgacg	gggagtcagg	6060
caactatgga	tgaacgaaat	agacagatcg	ctgagatagg	tgcctcactg	attaagcatt	6120
ggtaactgtc	agaccaagtt	tactcatata	tacttttagat	tgatttaaaa	cttcattttt	6180
aattttaaag	gatctaggtg	aagatccttt	ttgataatct	catgaccaa	atcccttaac	6240
gtgagttttc	gttccactga	gcgtcagacc	ccgtagaaaa	gatcaaagga	tcttcttgag	6300
atcctttttt	tctgcgcgta	atctgctgct	tgcaaacaaa	aaaaccaccg	ctaccagcgg	6360
tggtttgttt	gccggatcaa	gagctaccaa	ctctttttcc	gaaggtaact	ggcttcagca	6420
gagcgcagat	accaaatact	gtccttctag	tgtagccgta	gttaggccac	cacttcaaga	6480
actctgtagc	accgcctaca	tacctcgctc	tgctaatacct	gttaccagtg	gctgctgcca	6540
gtggcgataa	gtcgtgtctt	accgggttgg	actcaagacg	atagttaccg	gataaggcgc	6600
agcggtcggg	ctgaacgggg	ggttcgtgca	cacagcccag	cttgagcgga	acgacctaca	6660
ccgaactgag	atacctacag	cgtgagcatt	gagaaagcgc	cacgcttccc	gaaggagaaa	6720
aggcggacag	gtatccggta	agcggcaggg	tcggaacagg	agagcgcacg	agggagcttc	6780
cagggggaaa	cgcttggtat	ctttatagtc	ctgtcggggt	tcgccacctc	tgacttgagc	6840
gtcgattttt	gtgatgctcg	tcaggggggc	ggagcctatg	gaaaaacgcc	agcaacgcgg	6900
ccttttttacg	gttcctggcc	ttttgctggc	cttttgctca	catgttcttt	cctgcgttat	6960
cccctgattc	tgtggataac	cgtattaccg	cctttgagtg	agctgatacc	gctcgccgca	7020

gccgaacgac cgagcgcagc gagtcagtga gcgaggaagc ggaagagcgc ccaatacgca 7080  
aaccgcctct ccccgcgcggt tggccgattc attaatgcag agcttgcaat tcgcgcgttt 7140  
ttcaatatta ttgaagcatt tatcaggggtt attgtctcat gagcggatac atatttgaat 7200  
gtatttagaa aaataaacia ataggggttc cgcgcacatt tccccgaaaa gtgccacctg 7260  
acgtctaaga aaccattatt atcatgacat taacctataa aaataggcgt agtacgaggc 7320  
cctttcactc attagatgca tgtcggttaca taacttacgg taaatggccc gcctgggtga 7380  
ccgccaacg acccccgccc attgacgtca ataatgacgt atgttcccat agtaacgcca 7440  
atagggaactt tccattgacg tcaatgggtg gagtatttac g 7481

<210> 155

<211> 8123

<212> DNA

<213> pDEST27

<220>

<221> gene

<222> (130)..(793)

<223> GST

<220>

<221> gene

<222> (803)..(927)

<223> attR1

<220>

<221> gene

<222> (1036)..(1695)

<223> CmR

<220>

<221> gene

<222> (1815)..(1899)



<223> inactivated ccdA

<220>

<221> gene

<222> (2037) .. (2342)

<223> ccdB

<220>

<221> gene

<222> (2383) .. (2507)

<223> attR2

<220>

<221> gene

<222> (2693) .. (3055)

<223> SV40 polyA

<220>

<221> gene

<222> (3250) .. (3705)

<223> f1 intergenic region

<220>

<221> gene

<222> (3769) .. (4187)

<223> SV40 promoter

<220>

<221> gene

<222> (4232) .. (5026)

<223> neo

<220>

<221> gene

<222> (5090)..(5138)

<223> polyA

<220>

<221> gene

<222> (5549)..(6409)

<223> Apr

<220>

<221> gene

<222> (6558)..(7197)

<223> ori

<220>

<221> gene

<222> (27)..(7628)

<223> CMV promoter

<400> 155

ataagcagag ctcgttttagt gaaccgtcag atcgccctgga gacgccatcc acgctgtttt 60  
gacctccata gaagacaccg ggaccgatcc agcctccgga ctctagccta ggccgcggac 120  
catggccccct atactagggtt attggaaaat taagggcctt gtgcaacca ctcgacttct 180  
tttggaatat cttgaagaaa aatatgaaga gcatttgtat gagcgcgatg aaggtgataa 240  
atggcgaaac aaaaagtttg aattgggttt ggagtttccc aatcttcctt attatatga 300  
tggtgatggt aaattaacac agtctatggc catcatagct tatatagctg acaagcacia 360  
catgttgggt ggttgtccaa aagagcgtgc agagatttca atgcttgaag gagcgtttt 420  
ggatattaga tacggtgttt cgagaattgc atatagtaaa gactttgaaa ctctcaaagt 480  
tgattttctt agcaagctac ctgaaatgct gaaaatgttc gaagatcggt tatgtcataa 540  
aacatattta aatggtgatc atgtaacca tctgacttc atgttgatg acgctcttga 600

tgttgtttta	tacatggacc	caatgtgcct	ggatgcgttc	ccaaaattag	tttgtttttaa	660
aaaacgtatt	gaagctatcc	cacaaattga	taagtacttg	aatccagca	agtatatagc	720
atggcctttg	cagggctggc	aagccacgtt	tgggtggtggc	gaccatcctc	caaaatcggg	780
tctggttccg	cgttctagat	caacaagttt	gtacaaaaaa	gctgaacgag	aaacgtaaaa	840
tgatataaat	atcaatatat	taaattagat	tttgcataaa	aaacagacta	cataatactg	900
taaaacacaa	catatccagt	cactatggcg	gccgcattag	gcaccccagg	ctttacactt	960
tatgcttccg	gctcgtataa	tgtgtggatt	ttgagttagg	atccggcgag	attttcagga	1020
gctaaggaag	ctaaaatgga	gaaaaaaatc	actggatata	ccaccgttga	tatatcccaa	1080
tggcatcgta	aagaacattt	tgaggcattt	cagtcagttg	ctcaatgtac	ctataaccag	1140
accgttcagc	tggatattac	ggccttttta	aagaccgtaa	agaaaaataa	gcacaagttt	1200
tatccggcct	ttattcacat	tcttgcccgc	ctgatgaatg	ctcatccgga	attccgtatg	1260
gcaatgaaag	acggtgagct	ggtgatatgg	gatagtgttc	acccttggtt	caccgttttc	1320
catgagcaaa	ctgaaacgtt	ttcatcgctc	tggagtgaat	accacgacga	tttccggcag	1380
tttctacaca	tatattcgca	agatgtggcg	tgttacggtg	aaaacctggc	ctatttccct	1440
aaagggttta	ttgagaatat	gtttttcgtc	tcagccaatc	cctgggtgag	tttcaccagt	1500
tttgatttaa	acgtggccaa	tatggacaac	ttcttcgccc	ccgttttcac	catgggcaaa	1560
tattatacgc	aaggcgacaa	ggtgctgatg	ccgctggcga	ttcagggtca	tcatgccgtc	1620
tgtgatggct	tccatgtcgg	cagaatgctt	aatgaattac	aacagtactg	cgatgagtgg	1680
cagggcgggg	cgtaaagatc	tggatccggc	ttactaaaag	ccagataaca	gtatgcgtat	1740
ttgcgcgctg	atttttgcgg	tataagaata	tatactgata	tgtatacccg	aagtatgtca	1800
aaaagagggtg	tgctatgaag	cagcgtatta	cagtgacagt	tgacagcgac	agctatcagt	1860
tgctcaaggc	atataatgat	tcaatatctc	cggctctggta	agcacaacca	tgcagaatga	1920
agcccgctgt	ctgcgtgccg	aacgctggaa	agcggaaaat	caggaaggga	tggctgaggt	1980
cgccccggtt	attgaaatga	acggctcttt	tgctgacgag	aacagggact	ggtgaaatgc	2040
agtttaaggt	ttacacctat	aaaagagaga	gccgttatcg	tctgtttgtg	gatgtacaga	2100
gtgatattat	tgacacgccc	gggcgacgga	tggatgaccc	cctggccagt	gcacgtctgc	2160
tgtcagataa	agtctcccgt	gaactttacc	cgggtggtgca	tatcggggat	gaaagctggc	2220
gcatgatgac	caccgatatg	gccagtgtgc	cggctctccgt	tatcggggaa	gaagtggctg	2280
atctcagcca	ccgcgaaaat	gacatcaaaa	acgccattaa	cctgatgttc	tggggaatat	2340
aaatgtcagg	ctcccttata	cacagccagt	ctgcaggctc	accatagtga	ctggatatgt	2400
tgtgttttac	agtattatgt	agtctgtttt	ttatgcaaaa	tctaatttaa	tatattgata	2460

tttatatcat	tttacgtttc	tcgttcagct	ttcttgtaca	aagtgggtga	tcgcgtgcat	2520
gcgacgtcat	agctctctcc	ctatagttag	tcgtattata	agctaggcac	tggccgtcgt	2580
tttacaacgt	cgtgactggg	aaaactgcta	gcttgggata	tttgtgaagg	aaccttactt	2640
ctgtgggtgtg	acataattgg	acaaactacc	tacagagatt	taaagctcta	aggtaaatat	2700
aaaattttta	agtgtataat	gtgttaaact	agctgcatat	gcttgctgct	tgagagtttt	2760
gcttactgag	tatgatttat	gaaaatatta	tacacaggag	ctagtgattc	taattgtttg	2820
tgtatttttag	attcacagtc	ccaaggetca	tttcaggccc	ctcagtcctc	acagtctggt	2880
catgatcata	atcagccata	ccacatttgt	agaggtttta	cttgctttta	aaaacctccc	2940
acacctcccc	ctgaacctga	aacataaaat	gaatgcaatt	gttggtgtta	acttgtttat	3000
tgcagcttat	aatggttaca	aataaagcaa	tagcatcaca	aatttcacaa	ataaagcatt	3060
tttttcactg	cattctagtt	gtggtttgtc	caaactcatc	aatgtatctt	atcatgtctg	3120
gatcgatcct	gcattaatga	atcggccaac	gcgcggggag	aggcggtttg	cgtattggct	3180
ggcgtaatag	cgaagaggcc	cgcaccgata	gcccttccca	acagttgcgc	agcctgaatg	3240
gcgaatggga	cgcgccctgt	agcggcgcat	taagcgcggc	gggtgtgggtg	gttacgcgca	3300
gcgtgaccgc	tacacttgcc	agcgccctag	cgcgcgctcc	tttcgctttc	ttcccttctt	3360
ttctcgccac	gttcgcgggc	tttcccgcgc	aagctctaaa	tcggggggctc	cctttagggg	3420
tccgatttag	tgctttacgg	cacctcgacc	ccaaaaaact	tgattagggg	gatgggtcac	3480
gtagtggggc	atcgccctga	tagacggttt	ttcgcccttt	gacgttgagg	tccacgttct	3540
ttaatagtgg	actcttggtc	caaactggaa	caaacactcaa	ccctatctcg	gtctattctt	3600
ttgatttata	agggattttg	ccgatttcgg	cctattgggt	aaaaaatgag	ctgatttaac	3660
aaatatttaa	cgcgaatttt	aacaaaatat	taacgtttac	aatttcgcct	gatgcgggat	3720
tttctcctta	cgcactctgtg	cggattttca	caccgcatac	gcggatctgc	gcagcaccat	3780
ggcctgaaat	aacctctgaa	agaggaactt	ggtaggttac	cttctgaggc	ggaaagaacc	3840
agctgtggaa	tgtgtgtcag	ttaggggtgtg	gaaagtcccc	aggctcccca	gcaggcagaa	3900
gtatgcaaag	catgcatctc	aattagtcag	caaccagggtg	tggaaagtcc	ccaggctccc	3960
cagcaggcag	aagtatgcaa	agcatgcata	tcaattagtc	agcaaccata	gtcccccccc	4020
taactccgcc	catcccgcgc	ctaactccgc	ccagttccgc	ccattctccg	ccccatgggt	4080
gactaatttt	ttttatttat	gcagaggccg	aggccgcctc	ggcctctgag	ctattccaga	4140
agtagtgagg	aggctttttt	ggaggcctag	gcttttgcaa	aaagcttgat	tcttctgaca	4200
caacagtctc	gaacttaagg	ctagagccac	catgattgaa	caagatggat	tgacgcagg	4260
ttctccggcc	gcttgggtgg	agaggctatt	cggctatgac	tgggcacaa	agacaatcgg	4320

ctgctctgat gccgcctgtg tccggctgtc agcgcagggg cgcccgggtc tttttgtcaa	4380
gaccgacctg tccggtgccc tgaatgaact gcaggacgag gcagcgcggc tctcgtggct	4440
ggccacgacg ggcgttcctt gcgcagctgt gctcgacgtt gtcactgaag cgggaagggg	4500
ctggctgcta ttggggcgaag tgccggggca ggatctcctg tcctctcacc ttgctcctgc	4560
cgagaaagta tccatcatgg ctgatgcaat gcggcggctg catacgcttg atccggctac	4620
ctgcccattc gaccaccaag cgaaacatcg catcgagcga gcacgtactc ggatggaagc	4680
cggctctgtc gatcaggatg atctggacga agagcatcag gggctcgcgc cagccgaact	4740
gttcgccagg ctcaaggcgc gcatgcccga cggcgaggat ctcgtcgtga cccatggcga	4800
tgcttgcttg ccgaatatca tgggtggaaa tggccgcttt tctggattca tcgactgtgg	4860
ccggctgggt gtggcggacc gctatcagga catagcgttg gctaccctg atattgctga	4920
agagcttggc ggcgaaatgg ctgaccgctt cctcgtgctt tacggtatcg ccgctcccga	4980
ttcgcagcgc atcgcttct atcgcttct tgacgagttc ttctgagcgg gactctgggg	5040
ttcgaaatga ccgaccaagc gacgcccac ctgccatcac gatggccgca ataaaatctc	5100
tttattttca ttacatctgt gtgttggttt tttgtgtgaa tcgatagcga taaggatccg	5160
cgtatggtgc actctcagta caatctgctc tgatgccgca tagttaagcc agccccgaca	5220
cccgccaaaca ccgctgacg cgccctgacg ggcttgtctg ctcccggcat ccgcttacag	5280
acaagctgtg accgtctccg ggagctgcat gtgtcagagg ttttcaccgt catcacgaa	5340
acgcgcgaga cgaaagggcc tcgtgatacg cctattttta taggttaatg tcatgataat	5400
aatggtttct tagacgtcag gtggcacttt tcggggaaat gtgcgcggaa cccctatttg	5460
tttatttttc taaatacatt caaatatgta tccgctcatg agacaataac cctgataaat	5520
gcttcaataa tattgaaaaa ggaagagtat gagtattcaa catttcctg tcgcccttat	5580
tccctttttt gcggcatttt gccttctgt ttttgctcac ccagaaacgc tggtgaaagt	5640
aaaagatgct gaagatcagt tgggtgcacg agtgggttac atcgaactgg atctcaacag	5700
cggtaagatc cttgagagtt ttccgccccga agaacgtttt ccaatgatga gcacttttaa	5760
agttctgcta tgtggcgcgg tattatcccg tattgacgcc gggcaagagc aactcggtcg	5820
ccgcatacac tattctcaga atgacttggg tgagtactca ccagtcacag aaaagcatct	5880
tacggatggc atgacagtaa gagaattatg cagtgtgcc ataaccatga gtgataacac	5940
tgcgccaac ttacttctga caacgatcgg aggaccgaag gagctaaccg cttttttgca	6000
caacatgggg gatcatgtaa ctgccttga tcgttgggaa ccggagctga atgaagccat	6060
accaaacgac gagcgtgaca ccacgatgcc tgtagcaatg gcaacaacgt tgcgcaaact	6120
attaactggc gaactactta ctctagcttc ccggcaacaa ttaatagact ggatggaggc	6180

ggataaagtt	gcaggaccac	ttctgcgctc	ggcccttccg	gctggctggt	ttattgctga	6240
taaatctgga	gccggtgagc	gtgggtctcg	cggtatcatt	gcagcactgg	ggccagatgg	6300
taagccctcc	cgtatcgtag	ttatctacac	gacggggagt	caggcaacta	tggatgaacg	6360
aaatagacag	atcgctgaga	taggtgcctc	actgattaag	cattggtaac	tgtcagacca	6420
agtttactca	tatatacttt	agattgattt	aaaacttcat	ttttaattta	aaaggatcta	6480
ggtgaagatc	ctttttgata	atctcatgac	caaaatccct	taacgtgagt	tttcgttcca	6540
ctgagcgtca	gaccccgtag	aaaagatcaa	aggatcttct	tgagatcctt	tttttctgcg	6600
cgtaatctgc	tgcttgcaaa	caaaaaaacc	accgctacca	gcggtggttt	gtttgccgga	6660
tcaagagcta	ccaactcttt	ttccgaaggt	aactggcttc	agcagagcgc	agataccaaa	6720
tactgtcctt	ctagtgtagc	cgtagttagg	ccaccacttc	aagaactctg	tagcacccgc	6780
tacatacctc	gctctgctaa	tctgtttacc	agtggctgct	gccagtggcg	ataagtctgt	6840
tcttaccggg	ttggactcaa	gacgatagtt	accggataag	gcgcagcggg	cgggctgaac	6900
gggggggttc	tgcacacagc	ccagcttgga	gcgaacgacc	tacaccgaac	tgagatacct	6960
acagcgtgag	cattgagaaa	gcgccacgct	tcccgaaggg	agaaaggcgg	acaggtatcc	7020
ggtaagcggc	agggtcggaa	caggagagcg	cacgagggag	cttccagggg	gaaacgcctg	7080
gtatctttat	agtcctgtcg	ggttttcgcca	cctctgactt	gagcgtcgat	ttttgtgatg	7140
ctcgtcaggg	gggcggagcc	tatggaaaaa	cgccagcaac	gcggcctttt	tacggttcct	7200
ggcctttttg	tggccttttg	ctcacatggt	ctttcctgcg	ttatcccctg	attctgtgga	7260
taaccgtatt	accgcctttg	agtgagctga	taccgctcgc	cgcagccgaa	cgaccgagcg	7320
cagcgagtca	gtgagcgagg	aagcggaaga	gcgccaata	cgcaaaccgc	ctctccccgc	7380
gcgttggccg	attcattaat	gcagagcttg	caattcgcgc	gtttttcaat	attattgaag	7440
catttatcag	ggttattgtc	tcatgagcgg	atacatattt	gaatgtattt	agaaaaataa	7500
acaaataggg	gttccgcgca	catttccccg	aaaagtgcc	cctgacgtct	aagaaaccat	7560
tattatcatg	acattaacct	ataaaaatag	gcgtagtacg	aggccctttc	actcattaga	7620
tgcatgtcgt	tacataactt	acggtaaattg	gcccgcctgg	ctgaccgccc	aacgaccccc	7680
gccattgac	gtcaataatg	acgtatgttc	ccatagtaac	gccaataggg	actttccatt	7740
gacgtcaatg	ggtggagtat	ttacggtaaa	ctgcccactt	ggcagtacat	caagtgtatc	7800
atatgccaa	g	g	g	g	g	7860
ccagttacat	gaccttatgg	gactttccta	cttggcagta	catctacgta	ttagtcatcg	7920
ctattaccat	ggtgatgcgg	ttttggcagt	acatcaatgg	gcgtggatag	cggtttgact	7980
cacggggatt	tccaagtctc	caccccattg	acgtcaatgg	gagtttggtt	tggcaccaaa	8040

atcaacggga ctttccaaaa tgtcgtaaca actccgcccc attgacgcaa atgggcggta 8100  
ggcgtgtacg gtgggaggtc tat 8123

<210> 156

<211> 4396

<212> DNA

<213> pEXP501

<400> 156

ccattcgcca ttcaggctgc gcaactgttg ggaagggcga tcggtgcggg cctcttcgct 60  
attacgccag ccaatacgca aaccgcctct ccccgcgctg tggccgattc attaatgcag 120  
gatcgatcca gacatgataa gatacattga tgagtttgga caaaccacaa ctagaatgca 180  
gtgaaaaaaaa tgctttatct gtgaaatttg tgatgctatt gctttatttg taaccattat 240  
aagctgcaat aaacaagtta acaacaacaa ttgcattcat tttatgtttc aggttcaggg 300  
ggagggtgtg gaggtttttt aaagcaagta aaacctctac aaatgtggta tggctgatta 360  
tgatcatgaa cagactgtga ggactgaggg gcctgaaatg agccttggga ctgtgaatct 420  
aaaatacaca aacaattaga atcactagct cctgtgtata atattttcat aaatcatact 480  
cagtaagcaa aactctcaag cagcaagcat atgcagctag tttaacacat tatacactta 540  
aaaattttat atttacctta gagcttttaa tctctgtagg tagtttgtcc aattatgtca 600  
caccacagaa gtaaggttcc ttcacaaaga tcccaagcta gcagttttcc cagtcacgac 660  
gttgtaaaac gacggccagt gcctagctta taatacgact cactataggg accactttgt 720  
acaagaaagc tgggtacgcg taagcttggg cccctcgagg gatcctctag agcggccgccc 780  
gactagttag ctcgtcgacg atatcccggg aattccggac cggtagcagc ctgctttttt 840  
gtacaaactt gttctatagt gtcacctaaa taggcctaag ggtcatagct gtttcctgtg 900  
tgaaattggt atccgctccg cggcctaggc tagagtccgg aggctggatc ggtcccgggtg 960  
tcttctatgg aggtcaaaac agcgtggatg gcgtctccag gcgatctgac ggttcactaa 1020  
acgagctctg cttatataga cctcccaccg tacacgccta ccgcccattt gcgtcaatgg 1080  
ggcggagttg ttacgacatt ttggaaagtc ccgttgatct tggtgccaaa acaaactccc 1140  
attgacgtca atgggggtgga gacttggaat tccccgtgag tcaaaccgct atccacgccc 1200  
attgatgtac tgccaaaacc gcatcaccat ggtaatagcg atgactaata cgtagatgta 1260  
ctgccaaagta ggaaagtccc ataaggatcat gtactgggca taatgccagg cgggccattt 1320  
accgtcattg acgtcaatag ggggcgtact tggcatatga tacacttgat gtactgccaa 1380

gtgggcagtt taccgtaaact actccaccca ttgacgtcaa tggaaagtcc ctattggcgt 1440  
tactatggga acatacgtca ttattgacgt caatgggcgg gggtcgttgg gcggtcagcc 1500  
aggcggggcca tttaccgtaa gttatgtaac gacatgcac taatgagtga aagggcctcg 1560  
tactacgcct atttttatag gttaatgtca tgataataat ggtttcttag acgtcaggtg 1620  
gcacttttcg gggaaatgtg cgcggaaccc ctatttggtt atttttctaa atacattcaa 1680  
atatgtatcc gctcatgaga caataacct gataaatgct tcaataatat tgaaaaacgc 1740  
gcgaattgca agctctgcat taatgaatcg gccaacgcgc ggggagaggc ggtttgcgta 1800  
ttgggcgctc ttccgcttcc tcgctcactg actcgctgcg ctcggtcgtt cggctgcggc 1860  
gagcgggtatc agctcactca aaggcggtaa tacgggtatc cacagaatca ggggataacg 1920  
caggaaagaa catgtgagca aaaggccagc aaaaggccag gaaccgtaaa aaggccgcgt 1980  
tgctggcggtt tttccatagg ctccgcccc ctgacgagca tcacaaaaat cgacgctcaa 2040  
gtcagagggtg gcgaaacccg acaggactat aaagatacca ggcgtttccc cctggaagct 2100  
ccctcgtagc ctctcctgtt ccgacctgc cgttaccgg atacctgtcc gcctttctcc 2160  
cttcgggaag cgtggcgctt tctcaatgct cacgctgtag gtatctcagt tcgggtgtagg 2220  
tcgttcgctc caagctgggc tgtgtgcacg aacccccgt tcagcccgac cgctgcgcct 2280  
tatccggtaa ctatcgtctt gagtccaacc cggtaagaca cgacttatcg cactggcag 2340  
cagccactgg taacaggatt agcagagcga ggtatgtagg cggtgctaca gagttcttga 2400  
agtgggtggc taactacggc tacactagaa ggacagtatt tggatatctgc gctctgctga 2460  
agccagttac cttcggaaaa agagttggta gctcttgatc cggcaaaaca accaccgctg 2520  
gtagcgggtgg tttttttgtt tgcaagcagc agattacgcg cagaaaaaaaa ggatctcaag 2580  
aagatccttt gatcttttct acgggggtctg acgctcagtg gaacgaaaac tcacgttaag 2640  
ggatttttgt catgccataa cttcgtatag catacattat acgaagtatt ggcagagat 2700  
tatcaaaaag gatcttcacc tagatccttt taaattaaaa atgaagtttt aaatcaatct 2760  
aaagtatata tgagtaaact tggctctgaca gttaccaatg cttaatcagt gaggcaccta 2820  
tctcagcgat ctgtctatct cgttcatcca tagttgcctg actccccgtc gtgtagataa 2880  
ctacgatacg ggagggttta ccatctggcc ccagtgtctg aatgataccg cgagaccac 2940  
gctcaccggc tccagattta tcagcaataa accagccagc cggaagggcc gagcgcagaa 3000  
gtggctctgc aactttatcc gcctccatcc agtctattaa ttgttgccgg gaagctagag 3060  
taagtagttc gccagttaat agtttgcgca acgttggtgc cattgctaca ggcacgtgg 3120  
tgtcacgctc gtcgttttgt atggcttcat tcagctccgg tccccaacga tcaaggcgag 3180  
ttacatgac ccccatgttg tgcaaaaaag cggttagctc cttcgggtcct ccgacgttg 3240

B1



B1

```
tcagaagtaa gttggccgca gtgttatcac tcatggttat ggcagcactg cataattctc 3300
ttactgtcat gccatccgta agatgctttt ctgtgactgg tgagtactca accaagtcac 3360
tctgagaata gtgtatgagg cgaccgagtt gctcttgccc ggcgtcaata cgggataata 3420
ccgcgccaca tagcagaact ttaaaagtgc tcatcattgg aaaacgttct tcggggcgaa 3480
aactctcaag gatcttaccg ctgttgagat ccagttcgat gtaaccact cgtgcaccca 3540
actgatcttc agcatctttt actttcacca gcgtttctgg gtgagcaaaa acaggaaggc 3600
aaaatgccgc aaaaaaggga ataagggcga cacggaaatg ttgaatactc atactcttcc 3660
tttttcaata ttattgaagc atttatcagg gttattgtct catgccaggg gtgggcacac 3720
atatttgata ccagcgatcc ctacacagca cataattcaa tgcgacttcc ctctatcgca 3780
catcttagac ctttattctc cctccagcac acatcgaagc tgccgagcaa gccgttctca 3840
ccagtccaag acctggcatg agcggatata tatttgaatg tatttagaaa aataaacaaa 3900
taggggttcc gcgcacattt ccccgaaaag tgccacctga aattgtaaac gttaatat 3960
tgttaaaatt cgcgttaaatt ttttgttaaa tcagctcatt ttttaaccaa taggccgaaa 4020
tcggcaaaat cccttataaa tcaaaagaat agaccgagat agggttgagt gttgttccag 4080
tttggaacaa gagtccacta ttaaagaacg tggactccaa cgtcaaaggg cgaaaaaccg 4140
tctatcaggg cgatggccca ctacgtgaac catcacccta atcaagtttt ttggggtcga 4200
ggtgccgtaa agcactaaat cggaacccta aaggagagccc ccgatttaga gcttgacggg 4260
gaaagccggc gaacgtggcg agaaaggaag ggaagaaagc gaaaggagcg ggcgctaggg 4320
cgctggcaag tgtagcggtc acgctgcgcg taaccaccac acccgccgcg cttaatgcgc 4380
cgctacaggg cgcgtc 4396
```

<210> 157

<211> 4470

<212> DNA

<213> pDONR201

<220>

<221> gene

<222> (29) .. (260)

<223> attP1

<220>

<221> gene

<222> (656) .. (961)

<223> ccdB

<220>

<221> gene

<222> (1099) .. (1184)

<223> ccdA

<220>

<221> gene

<222> (1303) .. (1962)

<223> CmR

<220>

<221> gene

<222> (2210) .. (2442)

<223> attP2

<220>

<221> gene

<222> (2565) .. (3374)

<223> Kmr

<220>

<221> gene

<222> (3495) .. (4134)

<223> ori

<400> 157

gttaacgcta gcatggatct cgggccccaa ataatgattt tattttgact gatagtgacc 60

tgttcgttgc aacaaattga tgagcaatgc ttttttataa tgccaacttt gtacaaaaaa 120

B1

gctgaacgag aaacgtaaaa tgatataaat atcaatatat taaattagat tttgcataaa	180
aaacagacta cataatactg taaaacacaa catatccagt cactatgaat caactactta	240
gatgggtatta gtgacctgta gtcgaccgac agccttccaa atgttcttcg ggtgatgctg	300
ccaacttagt cgaccgacag ccttccaaat gttcttctca aacggaatcg tcgtatccag	360
cctactcgct attgtcctca atgccgtatt aaatcataaa aagaaataag aaaaagaggt	420
gcgagcctct tttttgtgtg acaaaataaa aacatctacc tattcatata cgctagtgtc	480
atagtcctga aaatcatctg catcaagaac aatttcacaa ctcttatact tttctcttac	540
aagtcgttcg gcttcatctg gattttcagc ctctatactt actaaacgtg ataaagtttc	600
tgtaatttct actgtatcga cctgcagact ggctgtgtat aagggagcct gacatttata	660
ttccccagaa catcaggtta atggcgtttt tgatgtcatt ttcgcggtgg ctgagatcag	720
ccacttcttc cccgataacg gagaccggca cactggccat atcggtggtc atcatgcgcc	780
agctttcatc cccgatatgc accaccgggt aaagtccacg ggagacttta tctgacagca	840
gacgtgcact ggccaggggg atcaccatcc gtcgcccggg cgtgtcaata atatcactct	900
gtacatccac aaacagacga taacggctct ctcttttata ggtgtaaacc ttaaaactgca	960
tttcaccagt cctgtttctc gtcagcaaaa gagccgttca tttcaataaa ccgggcgacc	1020
tcagccatcc ctctctgatt ttccgctttc cagcggttcg cagcgagacg acgggcttca	1080
ttctgcatgg ttgtgcttac cagaccggag atattgacat catatatgcc ttgagcaact	1140
gatagctgtc gctgtcaact gtcactgtaa tacgtctgct catagcacac ctctttttga	1200
catacttcgg gtatacatat cagtatatat tcttataaccg caaaaatcag cgcgcaaata	1260
cgcatactgt tatctggctt ttagtaagcc ggatccacgc gattacgccc cgccctgcca	1320
ctcatcgag tactgttgta attcattaag cattctgccg acatggaagc catcacagac	1380
ggcatgatga acctgaatcg ccagcggcat cagcaccttg tcgccttgcg tataatatatt	1440
gcccattggtg aaaacggggg cgaagaagtt gtccatattg gccacgttta aatcaaaact	1500
ggtgaaaact acccagggat tggctgagac gaaaaacata ttctcaataa accctttagg	1560
gaaataggcc aggttttcac cgtaacacgc cacatcttgc gaatatatgt gtagaaactg	1620
ccggaaatcg tcgtggtatt cactccagag cgatgaaaac gtttcagttt gtcattggaa	1680
aacggtgtaa caagggtgaa cactatccca tatcaccagc tcaccgtctt tcattgccat	1740
acggaattcc ggatgagcat tcatacggcg ggcaagaatg tgaataaagg ccggataaaa	1800
cttgtgctta tttttcttta cggctcttta aaaggccgta atatccagct gaacggtctg	1860
gttataggta cattgagcaa ctgactgaaa tgcctcaaaa tgttctttac gatgccattg	1920
ggatatatca acggtggtat atccagtgat tttttctctc atttttagctt ccttagctcc	1980

tgaaaatctc gataactcaa aaaatacgcc cggtagtgat cttatttcat tatggtgaaa 2040  
gttggaacct cttacgtgcc gatcaacgtc tcattttcgc caaaagttgg cccagggcctt 2100  
cccggtatca acagggacac caggatttat ttattctgcg aagtgatctt ccgtcacagg 2160  
tatttattcg gcgcaaagtg cgtcgggtga tgctgccaac ttagtcgact acaggtcact 2220  
aataccatct aagtagttga ttcatagtgat ctggatatgt tgtgttttac agtattatgt 2280  
agtctgtttt ttatgcaaaa tctaatttaa tatattgata tttatatcat tttacgtttc 2340  
tcgttcagct ttcttgtaga aagttggcat tataagaaag cattgcttat caatttggtg 2400  
caacgaacag gtcactatca gtcaaaaataa aatcattatt tgccatccag ctgcagctct 2460  
ggcccgtgtc tcaaaatctc tgatgttaca ttgcacaaga taaaaatata tcatcatgaa 2520  
caataaaaact gtctgcttac ataaacagta atacaagggg tgttatgagc catattcaac 2580  
gggaaacgtc gagggccgca ttaaattcca acatggatgc tgatttatat gggataaaat 2640  
gggctcgcga taatgtcggg caatcagggtg cgacaatcta tcgcttgat gggagcccg 2700  
atgcgccaga gttgtttctg aaacatggca aaggtagcgt tgccaatgat gttacagatg 2760  
agatggtcag actaaactgg ctgacggaat ttatgcctct tccgaccatc aagcatttta 2820  
tccgtactcc tgatgatgca tggttactca ccactgcgat ccccgaaaa acagcattcc 2880  
aggtattaga agaatatcct gattcagggtg aaaatattgt tgatgcgctg gcagtgttcc 2940  
tgcgccgggt gcattcgatt cctgtttgta attgtccttt taacagcgat cgcgtatttc 3000  
gtctcgctca ggcgcaatca cgaatgaata acggtttggt tgatgcgagt gattttgatg 3060  
acgagcgtaa tggctggcct gttgaacaag tctggaaaga aatgcataaa cttttgccat 3120  
tctcacgga ttcagtcgtc actcatgggtg atttctcact tgataacctt atttttgacg 3180  
aggggaaatt aataggttgt attgatgttg gacgagtcgg aatcgcagac cgataccagg 3240  
atcttgccat cctatggaac tgccctgggtg agttttctcc ttcattacag aaacggcttt 3300  
ttcaaaaata tggattgat aatcctgata tgaataaatt gcagtttcat ttgatgctcg 3360  
atgagttttt ctaatcagaa ttggttaatt gggtgtaaca ctggcagagc attacgctga 3420  
cttgacggga cggcgcaagc tcatgaccaa aatcccttaa cgtgagtttt cgttccactg 3480  
agcgtcagac cccgtagaaa agatcaaagg atcttcttga gatccttttt ttctgcgcgt 3540  
aatctgctgc ttgcaaacaa aaaaaccacc gctaccagcg gtggtttggt tgccggatca 3600  
agagctacca actctttttc cgaaggtaac tggttcagc agagcgcaga taccaaatac 3660  
tgtccttcta gtgtagccgt agttaggcca ccacttcaag aactctgtag caccgcctac 3720  
atacctcgct ctgctaacc tgttaccagt ggctgctgcc agtggcgata agtcgtgtct 3780  
taccgggttg gactcaagac gatagttacc ggataaggcg cagcggtcgg gctgaacggg 3840

B1

```

gggttcgtgc acacagccca gcttggagcg aacgacctac accgaactga gataacctaca 3900
gcgtgagcta tgagaaagcg ccacgcttcc cgaagggaga aaggcggaca ggtatccggt 3960
aagcggcagg gtcggaacag gagagcgcac gagggagctt ccagggggaa acgcctggta 4020
tctttatagt cctgtcgggt ttcgccacct ctgacttgag cgtcgatttt tgtgatgctc 4080
gtcagggggg cgagacctat ggaaaaacgc cagcaacgcg gcctttttac ggttcctggc 4140
cttttgctgg ccttttgctc acatgttctt tcctgcgtta tcccctgatt ctgtggataa 4200
ccgtattacc gctagccagg aagagtttgt agaaacgcaa aaaggccatc cgtcaggatg 4260
gccttctgct tagtttgatg cctggcagtt tatggcgggc gtccctgccg ccaccctccg 4320
ggcggttgct tcacaacgtt caaatccgct cccggcggat ttgtcctact caggagagcg 4380
ttcaccgaca aacaacagat aaaacgaaag gccagtcctt ccgactgagc ctttcgtttt 4440
atttgatgcc tggcagttcc ctactctcgc 4470

```

<210> 158

<211> 4204

<212> DNA

<213> pDONR202

<220>

<221> gene

<222> (127)..(269)

<223> attP1

<220>

<221> gene

<222> (486)..(1059)

<223> ori

<220>

<221> gene

<222> (1228)..(2107)

<223> KmR

<220>

<221> gene

<222> (2140) .. (2381)

<223> attP2

<220>

<221> gene

<222> (2629) .. (3288)

<223> CmR

B1 <220>

<221> gene

<222> (3408) .. (3492)

<223> inactivated ccdA

<220>

<221> gene

<222> (3630) .. (3935)

<223> ccdB

<400> 158

```
cggcattgag gacaatagcg agtaggctgg atacgacgat tccgtttgag aagaacattt      60
ggaaggctgt cggtcgacta agttggcagc atcacccgaa gaacatttgg aaggctgtcg      120
gtcgactaca ggtcactaat accatctaag tagttgattc atagtgactg gatatgttgt      180
gttttacagt attatgtagt ctgtttttta tgcaaaatct aatttaatat attgatattt      240
atatcatttt acgttttctg ttcagctttt ttgtacaaag ttggcattat aaaaaagcat      300
tgctcatcaa tttgttgcaa cgaacaggtc actatcagtc aaaataaaat cattatttgg      360
ggcccgagat ccatgctagc ggtaatacgg ttatccacag aatcagggga taacgcagga      420
aagaacatgt gagcaaaagg ccagcaaaag gccaggaacc gtaaaaaggc cgcgttgctg      480
gcgtttttcc ataggctccg cccccctgac gagcatcaca aaaatcgacg ctcaagtcag      540
aggtggcgaa acccgacagg actataaaga taccaggcgt ttccccctgg aagctccctc      600
gtgcgctctc ctgttccgac cctgccgctt accggatacc tgtccgcctt tctcccttcg      660
```

ggaagcgtgg	cgctttctca	tagctcacgc	tgtaggtatc	tcagttcggg	gtaggtcggt	720
cgctccaagc	tgggctgtgt	gcacgaaccc	cccgttcagc	ccgaccgctg	cgctttatcc	780
ggtaactatc	gtcttgagtc	caaccoggta	agacacgact	tatcgccact	ggcagcagcc	840
actggtaaca	ggattagcag	agcgaggtat	gtaggcgggtg	ctacagagtt	cttgaagtgg	900
tggcctaact	acggctacac	tagaaggaca	gtatttggta	tctgcgctct	gctgaagcca	960
gttaccttcg	gaaaaagagt	tggtagctct	tgatccggca	aacaaaccac	cgctggtagc	1020
ggtgggtttt	ttgtttgcaa	gcagcagatt	acgcgcagaa	aaaaaggatc	tcaagaagat	1080
cctttgatct	tttctacggg	gtctgacgct	cagtggaaacg	aaaactcacg	ttaagggatt	1140
ttggtcatga	gcttgcgccg	tcccgtaag	tcagcgtaat	gctctgccag	tgttacaacc	1200
aattaaccaa	ttctgattag	aaaaactcat	cgagcatcaa	atgaaactgc	aattttattca	1260
tatcaggatt	atcaatacca	tatTTTTgaa	aaagccgttt	ctgtaatgaa	ggagaaaact	1320
caccgaggca	gttccatagg	atggcaagat	cctggatatcg	gtctgcgatt	ccgactcgtc	1380
caacatcaat	acaacctatt	aatttccct	cgtcaaaaat	aaggttatca	agtgagaaat	1440
caccatgagt	gacgactgaa	tccggtgaga	atggcaaaaag	tttatgcatt	tctttccaga	1500
cttgttcaac	aggccagcca	ttacgctcgt	catcaaaaatc	actcgcatca	accaaaccgt	1560
tattcattcg	tgattgcgcc	tgagcgagac	gaaatacgcg	atcgctgtta	aaaggacaat	1620
tacaaacagg	aatcgaatgc	aaccggcgca	ggaacactgc	cagcgcatca	acaatatttt	1680
cacctgaatc	aggatattct	tctaatacct	ggaatgctgt	ttttccgggg	atcgcagtg	1740
tgagtaacca	tgcatcatca	ggagtacgga	taaaatgctt	gatggtcgga	agaggcataa	1800
attccgtcag	ccagtttagt	ctgaccatct	catctgtaac	atcattggca	acgctacctt	1860
tgccatgttt	cagaaacaac	tctggcgcat	cgggcttccc	atacaagcga	tagattgtcg	1920
cacctgattg	cccagacatta	tcgagagccc	atttataccc	atataaatca	gcattccatgt	1980
tggaaatttaa	tcgcggcctc	gacgtttccc	gttgaatatg	gctcataaca	ccccttgtat	2040
tactgtttat	gtaagcagac	agttttattg	ttcatgatga	tatatTTTTa	tcttgtgcaa	2100
tgtaacatca	gagattttga	gacacggggc	agagctgcag	ctggatggca	aataatgatt	2160
ttattttgac	tgatagtgac	ctgttcggtg	caacaaattg	ataagcaatg	ctttcttata	2220
atgccaaactt	tgtacaagaa	agctgaacga	gaaacgtaaa	atgatataaa	tatcaatata	2280
ttaaattaga	ttttgcataa	aaaacagact	acataatact	gtaaaacaca	acatatccag	2340
tcactatgaa	tcaactactt	agatgggtatt	agtgacctgt	agtcgactaa	gttggcagca	2400
tcacccgacg	cactttgcgc	cgaataaata	cctgtgacgg	aagatcactt	cgcagaataa	2460
ataaatcctg	gtgtccctgt	tgataccggg	aagccctggg	ccaacttttg	gcgaaaatga	2520

gacgttgatc	ggcacgtaag	aggttccaac	tttcaccata	atgaaataag	atcactaccg	2580
ggcgtatttt	ttgagttatc	gagattttca	ggagctaagg	aagctaaaat	ggagaaaaaa	2640
atcactggat	ataccaccgt	tgatatatcc	caatggcatc	gtaaagaaca	ttttgaggca	2700
tttcagtcag	ttgctcaatg	tacctataac	cagaccgttc	agctggatat	tacggccttt	2760
ttaaagaccg	taaagaaaaa	taagcacaag	ttttatccgg	cctttattca	cattcttgcc	2820
cgctgatga	atgctcatcc	ggaattccgt	atggcaatga	aagacggtga	gctggtgata	2880
tgggatagtg	ttcacccttg	ttacaccgtt	ttccatgagc	aaactgaaac	gttttcatcg	2940
ctctggagtg	aataccacga	cgatttccgg	cagtttctac	acatatattc	gcaagatgtg	3000
gcgtgttacg	gtgaaaacct	ggcctatttc	cctaaagggt	ttattgagaa	tatgtttttc	3060
gtctcagcca	atccctgggt	gagtttcacc	agttttgatt	taaacgtggc	caatatggac	3120
aacttcttcg	cccccgtttt	caccatgggc	aaatattata	cgcaaggcga	caaggtgctg	3180
atgccgctgg	cgattcaggt	tcatcatgcc	gtctgtgatg	gcttccatgt	cggcagaatg	3240
cttaatgaat	tacaacagta	ctgcgatgag	tggcagggcg	gggcgtaatc	gcgtggatcc	3300
ggcttactaa	aagccagata	acagtatgcg	tatttgccgcg	ctgatttttg	cggataaaga	3360
atatatactg	atatgtatac	ccgaagtatg	tcaaaaagag	gtgtgctatg	aagcagcgta	3420
ttacagtgac	agttgacagc	gacagctatc	agttgctcaa	ggcatatatg	atgtcaatat	3480
ctccggtctg	gtaagcacia	ccatgcagaa	tgaagcccgt	cgtctgcgtg	ccgaacgctg	3540
gaaagcggaa	aatcaggaag	ggatggctga	ggtcgcccgg	tttattgaaa	tgaacggctc	3600
ttttgctgac	gagaacaggg	actggtgaaa	tgcatgttaa	ggtttacacc	tataaaagag	3660
agagccgtta	tcgtctgttt	gtggatgtac	agagtgatat	tattgacacg	cccgggcgac	3720
ggatggtgat	ccccctggcc	agtgcacgtc	tgctgtcaga	taaagtctcc	cgtgaacttt	3780
acccggtggt	gcatacggg	gatgaaagct	ggcgcatgat	gaccaccgat	atggccagtg	3840
tgccggtctc	cgttatcggg	gaagaagtgg	ctgatctcag	ccaccgcgaa	aatgacatca	3900
aaaacgccat	taacctgatg	ttctggggaa	tataaatgtc	aggctccctt	atacacagcc	3960
agtctgcagg	tcgatacagt	agaaattaca	gaaactttat	cacgttttagt	aagtatagag	4020
gctgaaaatc	cagatgaagc	cgaacgactt	gtaagagaaa	agtataagag	ttgtgaaatt	4080
gttcttgatg	cagatgattt	tcaggactat	gacactagcg	tatatgaata	ggtagatggt	4140
tttattttgt	cacacaaaaa	agaggctcgc	acctcttttt	cttatttctt	tttatgattt	4200
aata						4204

<210> 159

<211> 4208



<212> DNA

<213> pDONR203

<220>

<221> gene

<222> (47)..(131)

<223> inactivated ccdA

<220>

<221> gene

<222> (251)..(910)

<223> CmR

<220>

<221> gene

<222> (1158)..(1398)

<223> attP2

<220>

<221> gene

<222> (1509)..(2082)

<223> ori

<220>

<221> gene

<222> (2251)..(3130)

<223> KmR

<220>

<221> gene

<222> (3174)..(3464)

<223> attP1

<220>

<221> gene

<222> (3812) .. (4117)

<223> ccdB

<400> 159

gcgttcggca cgcagacgac gggcttcatt ctgcatgggt gtgcttacca gaccggagat	60
attgacatca tatatgcctt gagcaactga tagctgtcgc tgtcaactgt cactgtaata	120
cgctgcttca tagcacacct ctttttgaca tacttcgggt atacatatca gtatatattc	180
ttataccgca aaaatcagcg cgcaaatacg catactgtta tctggctttt agtaagccgg	240
atccacgcgt ttacgccccg ccttgccact catcgcagta ctgttgtaat tcattaagca	300
ttctgccgac atggaagcca tcacagacgg catgatgaac ctgaatcgcc agcggcatca	360
gcaccttgtc gccttgcgta taatatttgc ccatggtgaa aacggggggcg aagaagttgt	420
ccatattggc cacgtttaaa tcaaaactgg tgaaactcac ccagggattg gctgagacga	480
aaaacatatt ctcaataaac ctttaggga aataggccag gttttcaccg taacacgcca	540
catcttgcca atatatgtgt agaaactgcc ggaaatcgtc gtggtattca ctccagagcg	600
atgaaaacgt ttcagtttgc tcatggaaaa cgggtgaaca aggggtgaaca ctatcccata	660
tcaccagctc accgtctttc attgccatac ggaattccgg atgagcattc atcaggcggg	720
caagaatgtg aataaaggcc ggataaaact tgtgcttatt tttctttacg gtctttaaaa	780
aggccgtaat atccagctga acggtctggt tataggtaca ttgagcaact gactgaaatg	840
cctcaaaaatg ttcttttacg tgccattggg atatatcaac ggtggtatat ccagtgattt	900
ttttctccat tttagcttcc ttagctcctg aaaatctcga taactcaaaa aatacgcccc	960
gtagtgatct tatttcatta tggtgaaagt tggaaacctc tacgtgccga tcaacgtctc	1020
attttcgcca aaagttggcc cagggtcttc cggatatcaac agggacacca ggatttat	1080
attctgcgaa gtgatcttcc gtcacaggta tttattcggc gcaaagtgcg tcgggtgatg	1140
ctgccaaact agtcgactac aggtcactaa taccatctaa gtagttgatt catagtgact	1200
ggatatgttg tgttttacag tattatgtag tctgtttttt atgcaaaatc taatttaata	1260
tattgatatt tatatcattt tacgtttctc gttcagcttt cttgtacaaa gttggcatta	1320
taagaaagca ttgcttatca atttgttgca acgaacaggc cactatcagt caaaataaaa	1380
tcattatttg ccatccagct agcggtaata cggttatcca cagaatcagg ggataacgca	1440

ggaaagaaca	tgtgagcaaa	aggccagcaa	aaggccagga	accgtaaaaa	ggccgcgttg	1500
ctggcgtttt	tccataggct	ccgccccct	gacgagcatc	acaaaaatcg	acgctcaagt	1560
cagaggtggc	gaaacccgac	aggactataa	agataccagg	cgtttcccc	tggaagctcc	1620
ctcgtgcgct	ctcctgttcc	gaccctgccg	cttaccggat	acctgtccgc	ctttctccct	1680
tcggaagcg	tggcgctttc	tcatagctca	cgctgtaggt	atctcagttc	ggtgtaggtc	1740
gttcgctcca	agctgggctg	tgtgcacgaa	cccccgcttc	agcccgaccg	ctgcgcctta	1800
tccggttaact	atcgtcttga	gtccaacccg	gtaagacacg	acttatcgcc	actggcagca	1860
gccactggta	acaggattag	cagagcgagg	tatgtaggcg	gtgctacaga	gttcttgaag	1920
tgggtggccta	actacggcta	cactagaaga	acagtatttg	gtatctgcgc	tctgctgaag	1980
ccagttacct	tcggaaaaag	agttggtagc	tcttgatccg	gcaaacaaac	caccgctggt	2040
agcggtggtt	tttttgtttg	caagcagcag	attacgcgca	gaaaaaaagg	atctcaagaa	2100
gatcctttga	tcttttctac	ggggtctgac	gctcagtggc	acgaaaactc	acgttaaggg	2160
attttggtca	tgagcttgcg	ccgtcccgtc	aagtcagcgt	aatgctctgc	cagtgttaca	2220
accaattaac	caattctgat	tagaaaaact	catcgagcat	caaataaaac	tgcaatttat	2280
tcatatcagg	attatcaata	ccatattttt	gaaaaagccg	tttctgtaat	gaaggagaaa	2340
actcaccgag	gcagttccat	aggatggcaa	gatcctggta	tccgtctgcg	attccgactc	2400
gtccaacatc	aatacaacct	attaattttc	cctcgtcaaa	aataagggtta	tcaagtgaga	2460
aatcaccatg	agtgacgact	gaatccgggtg	agaatggcaa	aagtttatgc	atttcttttc	2520
agacttgttc	aacaggccag	ccattacgct	cgtcatacaa	atcactcgca	tcaaccaaac	2580
cgttatcat	tccgtgattgc	gcctgagcga	gacgaaatac	gcgatcgctg	ttaaaaggac	2640
aattacaaac	aggaatcgaa	tgcaaccggc	gcaggaacac	tgccagcgca	tcaacaatat	2700
tttcacctga	atcaggatat	tcttctaata	cctggaatgc	tgtttttccg	gggatcgcag	2760
tggtagtaaa	ccatgcatca	tcaggagtac	ggataaaatg	cttgatggtc	ggaagaggca	2820
taaattccgt	cagccagttt	agtctgacca	tctcatctgt	aacatcattg	gcaacgctac	2880
ctttgccatg	tttcagaaac	aactctggcg	catcgggctt	cccatacaag	cgatagattg	2940
tgcacactga	ttgcccgaac	ttatcgcgag	cccatttata	cccataataa	tcagcatcca	3000
tggttgaatt	taatcgcggc	ctcgacgttt	cccgttgaat	atggctcata	acacccttg	3060
tattactgtt	tatgtaagca	gacagtttta	ttgttcatga	tgatatattt	ttatcttgtg	3120
caatgtaaca	tcagagattt	tgagacacgg	gccagagctg	cagctagcat	ggatctcggg	3180
cccaaataa	tgattttatt	ttgactgata	gtgacctgtt	cgttgcaaca	aattgatgag	3240
caatgctttt	ttataatgcc	aactttgtac	aaaaaagctg	aacgagaaac	gtaaaatgat	3300

ataaatatca atataatataa ttagatTTTTg cataaaaaaac agactacata atactgtaaa	3360
acacaacata tccagtcact atgaatcaac tacttagatg gtattagtga cctgtagtcg	3420
accgacagcc ttccaaatgt tcttcgggtg atgctgccaa ctagtcgac cgacagcctt	3480
ccaaatgttc ttctcaaacg gaatcgtcgt atccagccta ctgctattg tcctcaatgc	3540
cgtattaaat cataaaaaaga aataagaaaa agaggTgcga gcctctTTTT tgtgtgacaa	3600
aataaaaaaca tctacctatt catatacgct agtgtcatag tcctgaaaat catctgcac	3660
aagaacaatt tcacaactct tatactTTTT tcttacaagt cgttcggctt catctggatt	3720
ttcagcctct atacttacta aacgtgataa agtttctgta atttctactg tatcgacctg	3780
cagactggct gtgtataagg gagcctgaca tttatatcc ccagaacatc aggttaatgg	3840
cgTTTTgat gtcattttcg cggTggctga gatcagccac ttcttccccg ataacggaga	3900
ccggcacact ggccatatcg gtggTcatca tgcgccagct tTcatccccg atatgcacca	3960
ccgggtaaag tTcacgggag actttatctg acagcagacg Tgcactggcc agggggatca	4020
ccatccgtcg cccgggcgtg tcaataatat cactctgtac atccacaaac agacgataac	4080
ggctctctct tttataggTg taaaccttaa actgcatttc accagtcctt gttctcgTca	4140
gcaaaagagc cgTtcatttc aataaacggg gcgacctcag ccatcccttc ctgattttcc	4200
gctttcca	4208

<210> 160

<211> 4165

<212> DNA

<213> pDONR204

<220>

<221> misc\_feature

<222> (1326)..()

<223> n is any nucleotide

<400> 160

cggcattgag gacaatagcg agtaggctgg atacgacgat tccgtttgag aagaacattt	60
ggaaggctgt cggTcgacta caggTcacta ataccatcta agtagttgaa tcatagtgc	120
tggatatgtt gtgttttaca gtattatgta gtctgttttt tatgcaaaat ctaattta	180
atattgatat ttatatcatt ttacgtttct cgTtcagctt ttttgtacaa agttggcatt	240

ataaaaaaagc attgcttatac aattttgttgc aacgaacagg tcactatcag tcaaaataaa	300
atcattatattt gggggcccgag atccatgcta gctgcagtgc gcaggggcccg tgtctcaaaa	360
tctctgatgt tacattgcac aagataaaaa tatatcatca tgaacaataa aactgtctgc	420
ttacataaac agtaatacaa ggggtgttat gagccatatt caacgggaaa cgtcttgctg	480
gaggccgcga ttaaattcca acatggatgc tgatttatat gggataaaat gggctcgcga	540
taatgtcggg caatcaggtg cgacaatctt tcgattgtat gggaagcccg atgcgccaga	600
gttgtttctg aaacatggca aaggtagcgt tgccaatgat gttacagatg agatggtcag	660
actaaactgg ctgacggaat ttatgcctct tccgaccatc aagcatttta tccgtactcc	720
tgatgatgca tggttactca ccaactgcgat ccgcgggaaa acagcattcc aggtattaga	780
agaatatect gattcaggtg aaaatattgt tgatgcgctg gcagtgttcc tgcgccggtt	840
gcattcgatt cctgtttgta attgtccttt taacagcgat cgcgtatttc gtctcgtca	900
ggcgcaatca cgaatgaata acggtttggg tgatgcgagt gattttgatg acgagcgtaa	960
tggctggcct gttgaacaag tctggaaaga aatgcatacg cttttgccat tctcaccgga	1020
ttcagtcgtc actcatggtg atttctcact tgataacctt atttttgacg aggggaaatt	1080
aataggttgt attgatgttg gacgagtcgg aatcgcagac cgataccagg atcttgccat	1140
cctatggaac tgcctcgggtg agttttctcc ttcattacag aaacggcttt tcaaaaaata	1200
tgggtattgat aatcctgata tgaataaatt gcagtttcat ttgatgctcg atgagttttt	1260
ctaatacagaa ttggttaatt ggttgtaaca ctggcagagc attacgctga cttgacggga	1320
cggcgnecatg accaaaatcc cttaacgtga gttttcgttc cactgagcgt cagaccccg	1380
agaaaagatc aaaggatctt cttgagatcc tttttttctg cgcgtaatct gctgcttgca	1440
aacaaaaaaaa ccaccgctac cagcgggtggg ttgtttgccg gatcaagagc taccaactct	1500
ttttccgaag gtaactggct tcagcagagc gcagatacca aatactgtcc ttctagtgt	1560
gccgtagtta ggccaccact tcaagaactc tgtagcaccg cctacatacc tcgctctgct	1620
aatcctgtta ccagtggctg ctgccagtg gataaagtcg tgtcttaccg ggttggaactc	1680
aagacgatag ttaccggata aggcgcagcg gtcgggctga acgggggggtt cgtgcacaca	1740
gccagcttg gagcgaacga cctacaccga actgagatac ctacagcgtg agctatgaga	1800
aagcgccacg cttcccgaag ggagaaaggc ggacaggtat ccggtaaagc gcagggtcgg	1860
aacaggagag cgcacgaggg agcttccagg gggaaacgcc tggatatctt atagtcctgt	1920
cgggtttcgc cacctctgac ttgagcgtcg atttttgtga tgctcgtcag gggggcggag	1980
cctatggaaa aacgccagca acgcggcctt ttacaggctt ctggcctttt gctggccttt	2040
tgctcacatg ttctttctg cgttatcccc tgattctgtg gataaccgta ttaccgctag	2100

ctggatcggc	aaataatgat	tttatttttga	ctgatagtga	cctgttcggt	gcaacaaatt	2160
gataagcaat	gctttttttat	aatgccaaact	ttgtacaaga	aagctgaacg	agaaacgtaa	2220
aatgatataa	atatcaatat	attaaattag	atthttgcata	aaaaacagac	tacataatac	2280
tgtaaaacac	aacatatcca	gtcactatga	ttcaactact	tagatgggtat	tagtgacctg	2340
tagtcgacta	agttggcagc	atcacccgac	gcacttttgcg	ccgaataaat	acctgtgacg	2400
gaagatcact	tcgcagaata	aataaaatcct	gggtgtccctg	ttgataccgg	gaagccctgg	2460
gccaaactttt	ggcgaaaatg	agacgtttgat	cggcacattt	cacaactctt	atacttttct	2520
cttacaagtc	gttcggccttc	atctggattt	tcagcctcta	tacttactaa	acgtgataaa	2580
gtttctgtaa	tttctactgt	atcgacctgc	agactggctg	tgtataacgg	agcctgacat	2640
ttatatcccc	cagaacatca	ggttaatggc	gtttttgatg	tcatttttcgc	ggtaggctgag	2700
atcagccact	tcttccccga	taacggagac	cggcacactg	gccatatcgg	tggtcatcat	2760
gcgccagctt	tcacccccga	tatgcaccac	cgggtaaaagt	tcacgggaga	ctttatctga	2820
cagcagacgt	gcactggcca	gggggatcac	catccgtcgc	ccgggcgtgt	caataatata	2880
actctgtaca	tccacaaaca	gacgataacg	gctctctctt	ttataggtgt	aaaccttaaa	2940
ctgcatttca	ccagtcctctg	ttctcgtcag	caaaagagcc	gttcatttca	ataaacgggg	3000
cgacctcagc	catcccttcc	tgatttttccg	ctttccagcg	ttcggcacgc	agacgacggg	3060
cttcattctg	catgggtgtg	cttaccagac	cggagatatt	gacatcatat	atgccttgag	3120
caactgatag	ctgtcgtctg	caactgtcac	tgtaatacgc	tgcttcatag	cacacctctt	3180
tttgacatac	ttcgggtata	catatcagta	tatattctta	taccgcaaaa	atcagcgcgc	3240
aaatacgcac	actgttatct	ggcttttagt	aagccggatc	cacgcgttta	cgccccgccc	3300
tgccactcat	cgcagtactg	ttgtaattca	ttaagcattc	tgccgacatg	gaagccatca	3360
cagacggcat	gatgaacctg	aatcgccagc	ggcatcagca	ccttgctgcc	ttgcgtataa	3420
tatttgccca	tggtgaaaac	gggggcgaag	aagttgtcca	tattggccac	gtttaaatca	3480
aaactggtga	aactcaccca	gggattggct	gagacgaaaa	acatatcttc	aataaacctt	3540
ttagggaaat	aggccagggt	ttcacccgtaa	cacgccacat	cttgcggaata	tatgtgtaga	3600
aactgccgga	aatcgtcgtg	gtattcactc	cagagcgatg	aaaacgtttc	agtttgcctca	3660
tggaaaacgg	tgtaacaagg	gtgaacacta	tcccatatca	ccagctcacc	gtctttcatt	3720
gccatacggg	attccggatg	agcattcatc	aggcgggcaa	gaatgtgaat	aaaggccgga	3780
taaaacttgt	gcttattttt	ctttacgggc	tttaaaaagg	ccgtaatatc	cagctgaacg	3840
gtctgggtat	aggtacattg	agcaactgac	tgaaatgcct	caaaatgttc	tttacgatgc	3900
cattgggata	tatcaacggg	ggtatatcca	gtgatttttt	tctccatttt	agcttcctta	3960

gctcctgaaa atctcgataa ctcaaaaaat acgcccggta gtgatcttat ttcattatgg	4020
tgaaagttgg aacctcttac tgttcttgat gcagatgatt ttcaggacta tgacactagc	4080
atatatgaat aggtagatgt ttttattttg tcacacaaaa aagaggctcg cacctctttt	4140
tcttattttct ttttatgatt taata	4165

<210> 161

<211> 4939

<212> DNA

<213> pDONR205

<400> 161

ggcatcagca ccttgctgcc ttgcgtataa tatttgccca tggtgaaaac gggggcgaag	60
aagttgtcca tattggccac gtttaaataa aaactgggtga aactcaccca gggattggct	120
gagacgaaaa acatattctc aataaaccct ttagggaaat aggccagggt ttcaccgtaa	180
cacgccacat cttgcgaata tatgtgtaga aactgccgga aatcgctcgtg gtattcactc	240
cagagcgatg aaaacgtttc agtttgctca tggaaaacgg tgtaacaagg gtgaacacta	300
tcccatatca ccagctcacc gtctttcatt gccatacggga attccggatg agcattcacc	360
aggcggggcaa gaatgtgaat aaaggccgga taaaacttgt gcttattttt ctttacggtc	420
tttaaaaagg ccgtaatatc cagctgaacg gtctgggttat aggtacattg agcaactgac	480
tgaaatgcct caaaatgttc tttacgatgc cattggggata tatcaacggg ggtatatcca	540
gtgatttttt tctccatttt agcttcctta gctcctgaaa atctcgataa ctcaaaaaat	600
acgcccggta gtgatcttat ttcattatgg tgaaagttgg aacctcttac gtgccgatca	660
acgtctcatt ttcgccaaaa gttggcccag ggcttcccgg tatcaacagg gacaccagga	720
tttattttatt ctgcgaagtg atcttccgtc acagggtattt attcggcgca aagtgcgtcg	780
ggtgatgctg ccaacttagt cgactacagg tcaactaatac catctaagta gttgattcat	840
agtgactgga tatgttgtgt tttacagtat tatgtagtct gttttttatg caaaatctaa	900
tttaatatat tgatatttat atcattttac gtttctcgtt cagctttctt gtacaaagtt	960
ggcattataa gaaagcattg cttatcaatt tgttgcaacg aacagggtcac tatcagtcaa	1020
aataaaatca ttatttgcca tccagctgca gctctggccc gtgtctcaaa atctctgatg	1080
ttacattgca caagataaaa atatatcacc atgaattctc atgtttgaca gcttatcacc	1140
gataagcttt aatgcggtag tttatcacag ttaaattgct aacgcagtca ggcaccgtgt	1200
atgaaatcta acaatgcgct catcgctacc ctcggcaccg tcaccctgga tgctgtaggc	1260

ataggcttgg	ttatgccggt	actgccgggc	ctcttgcggg	atatcgcca	ttccgacagc	1320
atcgccagtc	actatggcgt	gctgctagcg	ctatatgcgt	tgatgcaatt	tctatgcgca	1380
cccgttctcg	gagcactgtc	cgaccgcttt	ggccgcccgc	cagtcctgct	cgttcgcta	1440
cttgagcca	ctatcgacta	cgcatcatg	gcgaccacac	ccgtcctgtg	gacccctac	1500
gccggacgca	tcgtggccgg	catcaccggc	gccacaggtg	cggttgctgg	cgcctatata	1560
gccgacatca	ccgatgggga	agatcgggct	cgccacttcg	ggctcatgag	cgtttgtttc	1620
ggcgtgggta	tggtggcagg	ccccgtggcc	gggggactgt	tgggcgccat	ctccttgcat	1680
gcaccattcc	ttgcggcggc	ggtgctcaac	ggcctcaacc	tactactggg	ctgcttccta	1740
atgcaggagt	cgcataaggg	agagcgtcga	ccgatgccct	tgagagcctt	caaccagtc	1800
agctccttcc	ggtgggcgcg	gggcatgact	atcgtcgccg	cacttatgac	tgtcttcttt	1860
atcatgcaac	tcgtaggaca	ggtgccggca	gcgctctggg	tcattttcgg	cgaggaccgc	1920
tttcgctgga	gcgcgacgat	gacggcctg	tcgcttgccg	tattcggaat	cttgccagcc	1980
ctcgctcaag	ccttcgtcac	tggtcccgc	accaaactgt	tcggcgagaa	gcaggccatt	2040
atcgccggca	tgggggccga	cgcgctgggc	tacgtcttgc	tggcgttcgc	gacgcgaggc	2100
tggtatggct	tccccattat	gattcttctc	gcttcgcggc	gcacgggat	gcccgcgttg	2160
caggccatgc	tgtccaggca	ggtagatgac	gaccatcagg	gacagcttca	aggatcgctc	2220
gcggctctta	ccagcctaac	ttcgatcatt	ggaccgctga	tcgtcacggc	gatttatgcc	2280
gcctcggcga	gcacatggaa	cgggttggca	tggtattgtg	gcgccgccct	ataccttgct	2340
tgctccccg	cgttgcgctg	cggtgcatgg	agccggggcca	cctcgacctg	aatggaagcc	2400
ggcggcacct	cgctaacgga	ttcaccactc	caagaattgg	agccaatcaa	ttcttgcgga	2460
gaactgtgaa	tgcgcaaac	aacccttggc	agaacatata	catcgcatga	ccaaaatccc	2520
ttaacgtgag	ttttcgttcc	actgagcgtc	agaccccgta	gaaaagatca	aaggatcttc	2580
ttgagatcct	ttttttctgc	gcgtaatctg	ctgcttgcaa	acaaaaaac	caccgctacc	2640
agcggtggtt	tgtttgccgg	atcaagagct	accaactctt	ttccgaagg	taactggctt	2700
cagcagagcg	cagataccaa	atactgtcct	tctagtgtag	ccgtagttag	gccaccactt	2760
caagaactct	gtagcaccgc	ctacatacct	cgtctgcta	atcctgttac	cagtggctgc	2820
tgccagtggc	gataagtcgt	gtcttaccgg	gttggaactca	agacgatagt	taccggataa	2880
ggcgcagcgg	tcgggctgaa	cgggggggtc	gtgcacacag	cccagcttgg	agcgaacgac	2940
ctacaccgaa	ctgagatacc	tacagcgtga	gctatgagaa	agcgccacgc	ttccgaagg	3000
gagaaaggcg	gacaggtata	cggtaagcgg	cagggtcgga	acaggagagc	gcacgagggg	3060
gcttcagggg	ggaaacgcct	ggtatcttta	tagtctgtgc	gggtttcgcc	acctctgact	3120



tgagcgtcga	tttttgtgat	gctcgtcagg	ggggcggagc	ctatggaaaa	acgccagcaa	3180
cgcggccttt	ttacggttcc	tggccttttg	ctggcctttt	gctcacatgt	tctttcctgc	3240
gttatccctt	gattctgtgg	ataaccgtat	taccgctagc	caggaagagt	ttgtagaaac	3300
gcaaaaaggc	catccgtcag	gatggccttc	tgcttagttt	gatgcctggc	agtttatggc	3360
gggcgtcctg	cccgccaccc	tccggggcgt	tgcttcacaa	cgttcaaata	cgtcccggc	3420
ggatttgtcc	tactcaggag	agcgttcacc	gacaaacaac	agataaaacg	aaaggcccag	3480
tcttccgact	gagcctttcg	ttttatattga	tgcttggcag	ttccctactc	tcgcgttaac	3540
gctagcatgg	atctcggggc	ccaaataatg	attttatttt	gactgatagt	gacctgttcg	3600
ttgcaacaaa	ttgatgagca	atgctttttt	ataatgccaa	ctttgtacaa	aaaagctgaa	3660
cagaaaacgt	aaaatgatat	aaatatcaat	atattaaatt	agattttgca	taaaaaacag	3720
actacataat	actgtaaaac	acaacatatc	cagtcactat	gaatcaacta	cttagatggg	3780
attagtgacc	tgtagtcgac	cgacagcctt	ccaaatgttc	ttcgggtgat	gctgccaaact	3840
tagtcgaccg	acagccttcc	aaatgttctt	ctcaaacgga	atcgtcgtat	ccagcctact	3900
cgtattgttc	ctcaatgccg	tattaaatca	taaaaagaaa	taagaaaaag	aggtgcgagc	3960
ctcttttttg	tgtgacaaaa	taaaaacata	tacctattca	tatacgctag	tgtcatagtc	4020
ctgaaaatca	tctgcatcaa	gaacaatttc	acaactctta	tacttttctc	ttacaagtcg	4080
ttcgggttca	tctggatttt	cagcctctat	acttactaaa	cgtgataaag	tttctgtaat	4140
ttctactgta	tcgacctgca	gactggctgt	gtataaggga	gcctgacatt	tatatccccc	4200
agaacatcag	gttaatggcg	ttttt gatgt	cattttcgcg	gtggctgaga	tcagccactt	4260
cttccccgat	aacggagacc	ggcacactgg	ccatatcggt	ggtcatcatg	cgccagcttt	4320
catccccgat	atgcaccacc	gggtaaagtt	cacgggagac	tttatctgac	agcagacgtg	4380
cactggccag	ggggatcacc	atccgtcgcc	cgggcgtgtc	aataatatca	ctctgtacat	4440
ccacaaacag	acgataacgg	ctctctcttt	tatagggtga	aaccttaaac	tgcatttcac	4500
cagtcctctg	tctcgtcagc	aaaagagccg	ttcatttcaa	taaaccgggc	gacctcagcc	4560
atcccttcc	gattttccgc	tttccagcgt	tcggcacgca	gacgacgggc	ttcattctgc	4620
atggttgtgc	ttaccagacc	ggagatattg	acatcatata	tgcttgagc	aactgatagc	4680
tgtcgtgtgc	aactgtcact	gtaatacgtc	gcttcatagc	acacctcttt	ttgacatact	4740
tcgggtatac	atatcagtat	atattcttat	accgcaaaaa	tcagcgcgca	aatacgcata	4800
ctgttatctg	gcttttagta	agccggatcc	acgcgattac	gccccgcctt	gccactcatc	4860
gcagtactgt	tgtaattcat	taagcattct	gccgacatgg	aagccatcac	agacggcatg	4920
atgaacctga	atcgccagc					4939

<210> 162

<211> 5156

<212> DNA

<213> pDONR206

<220>

<221> misc\_feature

<222> (1102)..()

<223> n is any nucleotide

<400> 162

cggcattgag gacaatagcg agtaggctgg atacgacgat tccgtttgag aagaacattt	60
ggaaggctgt cggtcgacta caggtcacta ataccatcta agtagttgaa tcatagtgac	120
tggatatgtt gtgtttttaca gtattatgta gtctgttttt tatgcaaaat ctaatttaat	180
atattgatat ttatatcatt ttacgtttct cgttcagctt ttttgtacaa agttggcatt	240
ataaaaaagc attgcttata aatttggtgc aacgaacagg tcaactatcag tcaaaataaa	300
atcattattt ggggcccgag atccatgcta gcggtaatac ggttatccac agaatcaggg	360
gataacgcag gaaagaacat gtgagcaaaa ggccagcaaa aggccaggaa ccgtaaaaag	420
gccgcgttgc tggcgttttt ccataggctc cgccccctg acgagcatca caaaaatcga	480
cgctcaagtc agaggtggcg aaacccgaca ggactataaa gataccaggc gtttccccct	540
ggaagctccc tcgtgcgctc tctgttccg accctgcgcg ttaccggata cctgtccgcc	600
tttctccctt cgggaagcgt ggcgctttct catagctcac gctgtaggta tctcagttcg	660
gtgtaggtcg ttcgctccaa gctgggctgt gtgcacgaac ccccggttca gcccgaccgc	720
tgcgcccttat ccggttaacta tcgtcttgag tccaacccgg taagacacga cttatcgcca	780
ctggcagcag ccaactggtaa caggattagc agagcgaggt atgtaggcgg tgctacagag	840
ttcttgaagt ggtggcctaa ctacggctac actagaagga cagtatttgg tatctgcgct	900
ctgctgaagc cagttacctt cggaaaaaga gttggtagct cttgatccgg caaacaacc	960
accgctggta gcggtggttt ttttgtttgc aagcagcaga ttacgcgcag aaaaaagga	1020
tctcaagaag atcctttgat cttttctacg ggggtctgacg ctcaagtggaa cgaaaactca	1080
cgttaaggga ttttggtcat gncgccgtcc cgtcaagtca gcgtaatgct ctgccagtg	1140
tacaaccaat taaccaattc tgattagaaa aactcatcga gcatcaaag aaactgcaat	1200

ttattcatat caggattatc aataccatat ttttgaaaaa gccgtttctg taatgaagga 1260  
gaaaactcac cgaggcagtt ccataggatg gcaagatcct ggtatcggtc tgcgattccg 1320  
actcgtccaa catcaataca acctattagc cgagggtctt cgatctcctg aagccagggc 1380  
agatccgtgc acagcacctt gccgtagaag aacagcaagg ccgccaatgc ctgacgatgc 1440  
gtggagaccg aaaccttgcg ctcgttcgcc agccaggaca gaaatgcctc gacttcgctg 1500  
ctgccaagg ttgccgggtg acgcacaccg tggaaacgga tgaaggcacg aaccagttg 1560  
acataagcct gttcggttcg taaactgtaa tgcaagtagc gtatgcgctc acgcaactgg 1620  
tccagaacct tgaccgaacg cagcgggtgt aacggcgagc tggcggtttt catggcttgt 1680  
tatgactgtt tttttgtaca gtctatgcct cgggcatcca agcagcaagc gcgttacgcc 1740  
gtgggtcgat gtttgatgtt atggagcagc aacgatgtta cgcagcagca acgatgttac 1800  
gcagcagggc agtcgccta aaacaaagtt aggtggctca agtatgggca tcattcgcac 1860  
atgtaggctc ggcctgacc aagtcaaate catgcgggct gctcttgatc ttttcggtcg 1920  
tgagttcgga gacgtagcca cctactccca acatcagccg gactccgatt acctcgggaa 1980  
cttgctccgt agtaagacat tcatcgcgct tgctgccttc gaccaagaag cggttgttgg 2040  
cgctctcgcg gcttacgttc tgcccaggtt tgagcagccg cgtagtgaga tctatatcta 2100  
tgatctcgca gtctccggcg agcacccgag gcagggcatt gccaccgcg ccatcaatct 2160  
cctcaagcat gaggccaacg cgcttggtgc ttatgtgatc tacgtgcaag cagattacgg 2220  
tgacgatccc gcagtggctc tctatacaaa gttgggcata cgggaagaag tgatgcactt 2280  
tgatatcgac ccaagtaccg ccacctaaca attcggtcaa gccgagatcg gcttcccggc 2340  
ctaatttccc ctcgtaaaaa ataaggttat caagtgagaa atcaccatga gtgacgactg 2400  
aatccggtga gaatggcaaa agcgtatgca tttctttcca gacttggtca acaggccagc 2460  
cattacgctc gtcataaaaa tcactcgcat caaccaaacc gttattcatt cgtgattgcg 2520  
cctgagcgag acgaaatagc cgatcgctgt taaaaggaca attacaaaca ggaatcgaat 2580  
gcaaccggcg caggaacact gccagcgcat caacaatatt ttcacctgaa tcaggatatt 2640  
cttctaatac ctggaatgct gttttcccg cggatcgagc ggtgagtaac catgcatcat 2700  
caggagtacg gataaaatgc ttgatggctg gaagaggcat aaattccgct agccagttta 2760  
gtctgaccat ctcatctgta acatcattgg caacgctacc tttgccatgt ttcagaaaca 2820  
actctggcg atcgggcttc ccatacaate gaaagattgt cgcacctgat tgcccagcat 2880  
tatcgcgagc ccatttatac ccataataat cagcatccat gttggaattt aatcgcgggc 2940  
tccagcaaga cgtttccgct tgaatatggc tcataacacc cttgtatta ctgtttatgt 3000  
aagcagacag ttttattgtt catgatgata tatttttate ttgtgcaatg taacatcaga 3060

B1

gattttgaga	cacggggcccn	gcgcactgca	gctggatcgg	caaataatga	ttttattttg	3120
actgatagtg	acctgttcgt	tgcaacaaat	tgataagcaa	tgctttttta	taatgccaac	3180
tttgtacaag	aaagctgaac	gagaaacgta	aaatgatata	aatatcaata	tattaaatta	3240
gattttgcat	aaaaaacaga	ctacataata	ctgtaaaaca	caacatatcc	agtcactatg	3300
attcaactac	ttagatggta	ttagtgacct	gtagtcgact	aagttggcag	catcacccga	3360
cgcactttgc	gccgaataaa	tacctgtgac	ggaagatcac	ttcgcagaat	aaataaatcc	3420
tggtgtccct	gttgataccg	ggaagccctg	ggccaacttt	tggcgaaaat	gagacgttga	3480
tcggcacgta	agaggttcca	actttcacca	taatgaaata	agatcactac	cgggcgtatt	3540
ttttgagtta	tcgagatttt	caggagctaa	ggaagctaaa	atggagaaaa	aaatgactgg	3600
atataccacc	gttgatatat	cccaatggca	tcgtaaagaa	cattttgagg	catttcagtc	3660
agttgctcaa	tgtacctata	accagaccgt	tcagctggat	attacggcct	ttttaaagac	3720
cgtaaagaaa	aataagcaca	agttttatcc	ggcctttatt	cacattcttg	cccgcctgat	3780
gaatgctcat	ccggaattcc	gtatggcaat	gaaagacggg	gagctgggtga	tatgggatag	3840
tgttcaccct	tgttacaccg	ttttccatga	gcaaactgaa	acgttttcat	cgctctggag	3900
tgaataccac	gacgatttcc	ggcagtttct	acacatatat	tcgcaagatg	tggcgtgtta	3960
cggtgaaaac	ctggcctatt	tccttaaagg	gtttattgag	aatatgtttt	tcgtctcagc	4020
caatccctgg	gtgagtttca	ccagttttga	tttaaacgtg	gccaatatgg	acaacttctt	4080
cgccccggtt	ttcaccatgg	gcaaatatta	tacgcaaggc	gacaagggtg	tgatgccgct	4140
ggcgattcag	gttcatcatg	ccgtctgtga	tggcttccat	gtcggcagaa	tgcttaatga	4200
attacaacag	tactgcgatg	agtggcaggg	cggggcgtaa	acgcgtggat	ccggcttact	4260
aaaagccaga	taacagtatg	cgtattttgcg	cgctgatttt	tgcggtataa	gaatatatac	4320
tgatatgtat	acctgaagta	tgtcaaaaag	aggtgtgcta	tgaagcagcg	tattacagtg	4380
acagttgaca	gcgacagcta	tcagttgctc	aaggcatata	tgatgtcaat	atctccggtc	4440
tggtaaagcac	aacctatgcg	aatgaagccc	gtcgtctgcg	tgccgaacgc	tggaaagcgg	4500
aaaatcagga	agggatggct	gaggtcgccc	ggtttattga	aatgaacggc	tcttttgctg	4560
acgagaacag	ggactgggtga	aatgcagttt	aaggtttaca	cctataaaaag	agagagccgt	4620
tatcgtctgt	ttgtggatgt	acagagtgat	attattgaca	cggccgggcg	acggatgggtg	4680
atccccctgg	ccagtgcacg	tctgctgtca	gataaagtct	cccgtgaact	ttaccgggtg	4740
gtgcatatcg	gggatgaaag	ctggcgcacg	atgaccaccg	atatggccag	tgtgccggtc	4800
tccgttatcg	gggaagaagt	ggctgatctc	agccaccgcg	aaaatgacat	caaaaacgcc	4860
attaacctga	tgttctgggg	aatataaatg	tcaggctccg	ttatacacag	ccagtctgca	4920

ggtcgataca gtagaaatta cagaaacttt atcacgttta gtaagtatag aggctgaaaa 4980  
tccagatgaa gccgaacgac ttgtaagaga aaagtataag agttgtgaaa ttgttcttga 5040  
tgcagatgat tttcaggact atgacactag catatatgaa taggtagatg tttttatttt 5100  
gtcacacaaa aaagaggctc gcacctcttt ttcttatttc tttttatgat ttaata 5156

<210> 163

<211> 21

<212> DNA

<213> attR1 Reading Frame A

B1 <400> 163  
atcacaagtt tgtacaaaa a 21

<210> 164

<211> 22

<212> DNA

<213> attR1 Reading Frame B

<400> 164  
atcaacaagt ttgtacaaaa aa 22

<210> 165

<211> 23

<212> DNA

<213> attR1 Reading Frame C

<400> 165  
atcaaacaag tttgtacaaa aaa 23

<210> 166

<211> 21

<212> DNA

<213> attR2 Reading Frame A

<400> 166

tttcttgtag aaagtgggtga t 21

<210> 167

<211> 22

<212> DNA

<213> attR2 Reading Frame B

<400> 167  
tttcttgtag aaagtgggtg at 22

<210> 168

<211> 23

<212> DNA

<213> attR2 Reading Frame C

B1  
<400> 168  
tttcttgtag aaagtgggttc gat 23

<210> 169

<211> 23

<212> DNA

<213> attR1 Reading Frame C (Alternative B)

<400> 169  
atcaaacaag tttgtacaaa aaa 23

<210> 170

<211> 23

<212> DNA

<213> attR2 Reading Frame C (Alternative B)

<400> 170  
tttcttgtag aaagtgggttt gat 23

<210> 171

<211> 30

<212> DNA

<213> attR1 Reading Frame A Cassette

<220>

<221> misc\_feature

<222> (1)..()

<223> n is any nucleotide

<220>

B1 <221> misc\_feature

<222> (2)..()

<223> n is any nucleotide

<220>

<221> misc\_feature

<222> (3)..()

<223> n is any nucleotide

<220>

<221> misc\_feature

<222> (4)..()

<223> n is any nucleotide

<220>

<221> misc\_feature

<222> (5)..()

<223> n is any nucleotide

<220>

<221> misc\_feature

<222> (6)..()

<223> n is any nucleotide

<400> 171  
nnnnnnnatca caagtttgta caaaaaagct

30

<210> 172

<211> 33

<212> DNA

<213> attR1 Reading Frame B Cassette

<220>

<221> misc\_feature

<222> (1)..()

<223> n is any nucleotide

<220>

<221> misc\_feature

<222> (2)..()

<223> n is any nucleotide

<220>

<221> misc\_feature

<222> (3)..()

<223> n is any nucleotide

<220>

<221> misc\_feature

<222> (4)..()

<223> n is any nucleotide

<220>

<221> misc\_feature



<222> (5)..(6)

<223> n cannot be TG or TA

<220>

<221> misc\_feature

<222> (7)..()

<223> n is any nucleotide

<220>

<221> misc\_feature

<222> (8)..()

<223> n is any nucleotide

<400> 172  
nnnnnnnnnat caacaagttt gtacaaaaaa gct

33

<210> 173

<211> 33

<212> DNA

<213> attR1 Reading Frame C Cassette

<220>

<221> misc\_feature

<222> (1)..()

<223> n is any nucleotide

<220>

<221> misc\_feature

<222> (2)..()

<223> n is any nucleotide

<220>

<221> misc\_feature  
<222> (3)..()  
<223> n is any nucleotide

<220>

<221> misc\_feature  
<222> (4)..()  
<223> n is any nucleotide

<220>

<221> misc\_feature  
<222> (5)..()  
<223> n is any nucleotide

<220>

<221> misc\_feature  
<222> (6)..()  
<223> n is any nucleotide

<220>

<221> misc\_feature  
<222> (7)..()  
<223> n is any nucleotide

<400> 173  
nnnnnnnatc aaacaagttt gtacaaaaaa gct

33

<210> 174

<211> 4554

<212> DNA

<213> prfC Parent III

<220>

<221> gene

<222> (286)..(410)

<223> attR1

<220>

<221> gene

<222> (660)..(1319)

<223> CmR

<220>

<221> gene

<222> (1439)..(1523)

<223> inactivated ccdA

<220>

<221> gene

<222> (1661)..(1966)

<223> ccdB

<220>

<221> gene

<222> (2007)..(2131)

<223> attR2

<220>

<221> gene

<222> (2753)..(3613)

<223> amp

<400> 174  
gcgcceaata cgcaaaccgc ctctccccgc gcgttgccg attcattaat gcagctggca

B1

cgacaggttt	cccgactgga	aagcgggag	tgagcgcaac	gcaattaatg	tgagttagct	120
cactcattag	gcacccag	ctttacactt	tatgcttccg	gctcgtatgt	tgtgtggaat	180
tgtgagcgga	taacaatttc	acacaggaaa	cagctatgac	catgattacg	ccaagcttgc	240
atgcctgcag	gtcgactcta	gaggatcccc	gggtaccgat	atcaaacaag	tttgtacaaa	300
aaagctgaac	gagaaacgta	aaatgatata	aatatcaata	tattaaatta	gattttgcat	360
aaaaaacaga	ctacataata	ctgtaaaaca	caacatatcc	agtcactatg	gcggccgcta	420
agttggcagc	atcacccgac	gcactttgcg	ccgaataaat	acctgtgacg	gaagatcact	480
tcgcagaata	aataaatcct	ggtgtccctg	ttgataccgg	gaagccctgg	gccaaactttt	540
ggcgaaaatg	agacgttgat	cggcacgtaa	gaggttccaa	ctttcaccat	aatgaaataa	600
gatcactacc	gggcgtat	tttgagttat	cgagattttc	aggagctaag	gaagctaaaa	660
tggagaaaaa	aatcactgga	tataccaccg	ttgatataat	ccaatggcat	cgtaaagaac	720
attttgaggc	atttcagtca	gttgcctcaat	gtacctataa	ccagaccgtt	cagctggata	780
ttacggcctt	tttaaagacc	gtaaagaaaa	ataagcacia	gttttatccg	gcctttattc	840
acattcttgc	ccgcctgatg	aatgctcatc	cggaattccg	tatggcaatg	aaagacgggtg	900
agctggtgat	atgggatagt	gttcaccctt	gttacaccgt	tttccatgag	caaactgaaa	960
cgttttcatc	gctctggagt	gaataccacg	acgatttccg	gcagtttcta	cacatatatt	1020
cgcaagatgt	ggcgtgttac	ggtgaaaacc	tggcctat	ccctaaagg	tttattgaga	1080
atatgtttt	cgtctcagcc	aatccctggg	tgagtttcac	cagttttgat	ttaaacgtgg	1140
ccaatatgga	caacttcttc	gccccggtt	tcaccatggg	caaataattat	acgcaaggcg	1200
acaagggtgt	gatgccgctg	gcgattcagg	ttcatcatgc	cgtctgtgat	ggcttccatg	1260
tcggcagaat	gcttaatgaa	ttacaacagt	actgcgatga	gtggcagggc	ggggcgtaat	1320
ctagaggatc	cggcttacta	aaagccagat	aacagtatgc	gtattttg	gctgattttt	1380
gcggtataag	aatatatact	gatatgtata	cccgaagtat	gtcaaaaaga	ggtgtgctat	1440
gaagcagcgt	attacagtga	cagttgacag	cgacagctat	cagttgctca	aggcatatat	1500
gatgtcaata	tctccggtct	ggtaagcaca	accatgcaga	atgaagccc	tcgtctgcgt	1560
gccgaacgct	ggaaagcgga	aaatcaggaa	gggatggctg	aggtcgccc	gtttattgaa	1620
atgaacggct	cttttgctga	cgagaacagg	gactgggtgaa	atgcagttta	aggtttacac	1680
ctataaaaaga	gagagccgtt	atcgtctgtt	tgtggatgta	cagagtgata	ttattgacac	1740
gccccggcga	cggatgggtga	tccccctggc	cagtgcacgt	ctgctgtcag	ataaagtctc	1800
ccgtgaactt	tacccgggtg	tgcatatcgg	ggatgaaagc	tggcgcatga	tgaccaccga	1860
tatggccagt	gtgccggtct	ccgttatcgg	ggaagaagtg	gctgatctca	gccaccgcga	1920

aaatgacatc	aaaaacgcc	taaacctgat	gttctgggga	atataaatgt	caggctccgt	1980
tatacacagc	cagtctgcag	gtcgaccata	gtgactggat	atgttgtgtt	ttacagtatt	2040
atgtagtctg	ttttttatgc	aaaatcta	ttaatatatt	gatatttata	tcattttta	2100
tttctcgttc	agctttcttg	taaaaagtgg	ttcgatatcg	gtaccgagct	cgaattcact	2160
ggccgctcgt	ttacaacgtc	gtgactggga	aaacctgggc	gttaccaca	ttaatcgct	2220
tgcagcacat	ccccctttcg	ccagctggcg	taatagcgaa	gaggcccgca	ccgatecgcc	2280
ttccaacag	ttgcgcagcc	tgaatggcga	atggcgccgt	atgcggtatt	ttctccttac	2340
gcatctgtgc	ggtattttcac	accgcata	gtgcactctc	agtacaatct	gctctgatgc	2400
cgcatagtta	agccagcccc	gacacccgcc	aacacccgct	gacgcgccct	gacgggcttg	2460
tctgctcccg	gcatccgctt	acagacaagc	tgtgaccgtc	tccgggagct	gcatgtgtca	2520
gaggttttca	ccgtcatcac	cgaacgcgc	gagacgaaag	ggcctcgtga	tacgcctatt	2580
tttatagggt	aatgtcatga	taataatggt	ttcttagacg	tcagggtggca	cttttcgggg	2640
aaatgtgcgc	ggaacccta	tttgtttatt	tttctaaata	cattcaaata	tgtatccgct	2700
catgagacaa	taacctgat	aaatgcttca	ataatattga	aaaaggaaga	gtatgagtat	2760
tcaacatttc	cgtgtcgccc	ttattccctt	ttttgcggca	ttttgccttc	ctgtttttgc	2820
tcaccagaa	acgttgggtga	aagtaaaaga	tgtgaagat	cagttgggtg	cacgagtggg	2880
ttacatcgaa	ctggatctca	acagcggtaa	gatccttgag	agttttcgcc	ccgaagaacg	2940
ttttccaatg	atgagcactt	ttaaagtctt	gctatgtggc	gcggtattat	cccgtattga	3000
cgccggggca	gagcaactcg	gtcgccgc	acactattct	cagaatgact	tggttgagta	3060
ctcaccagtc	acagaaaagc	atcttacgga	tggcatgaca	gtaagagaat	tatgcagtgc	3120
tgccataacc	atgagtgata	acactgcggc	caacttactt	ctgacaacga	tccgaggacc	3180
gaaggagcta	accgcttttt	tgcacaacat	gggggatcat	gtaactcgcc	ttgatcgttg	3240
ggaaccggag	ctgaatgaag	ccataccaaa	cgacgagcgt	gacaccacga	tgctgtagc	3300
aatggcaaca	acgttgcgca	aactattaac	tggcgaaacta	cttactctag	cttcccgga	3360
acaattaata	gactggatgg	aggcggataa	agttgcagga	ccacttctgc	gctcgccct	3420
tccggctggc	tggtttattg	ctgataaatc	tggagccggt	gagcgtgggt	ctcgcggtat	3480
cattgcagca	ctggggccag	atggtaagcc	ctcccgatc	gtagttatct	acacgacggg	3540
gagtcaggca	actatggatg	aacgaaatag	acagatcgct	gagatagggtg	cctcactgat	3600
taagcattgg	taactgtcag	accaagttta	ctcatatata	cttttagattg	atttaaaact	3660
tcatttttaa	tttaaaagga	tctaggtgaa	gatccttttt	gataatctca	tgacccaaa	3720
cccttaacgt	gagttttcgt	tccactgagc	gtcagacccc	gtagaaaaga	tcaaaggatc	3780

B1

ttcttgagat	cctttttttt	tgcgcgtaat	ctgctgcttg	caaacaaaaa	aaccaccgct	3840
accagcggtg	gtttgtttgc	cggatcaaga	gctaccaact	ctttttccga	aggtaactgg	3900
cttcagcaga	gcgcagatac	caaatactgt	ccttctagt	tagccgtagt	tagggcacca	3960
cttcaagaac	tctgtagcac	cgccacata	cctcgctctg	ctaatactgt	taccagtggc	4020
tgctgccagt	ggcgataagt	cgtgtcttac	cgggttggac	tcaagacgat	agttaccgga	4080
taaggcgcag	cggtcgggct	gaacgggggg	ttcgtgcaca	cagcccagct	tggagcgaac	4140
gacctacacc	gaactgagat	acctacagcg	tgagctatga	gaaagcgcca	cgcttcccga	4200
agggagaaaag	gcggacaggt	atccggtaag	cggcagggtc	ggaacaggag	agcgcacgag	4260
ggagcttcca	gggggaaacg	cctgggtatct	ttatagtcct	gtcgggtttc	gccacctctg	4320
acttgagcgt	cgatttttgt	gatgctcgtc	agggggggcg	agcctatgga	aaaacgccag	4380
caacgcggcc	tttttacggg	tcttggcctt	ttgctggcct	tttgctcaca	tggtctttcc	4440
tgcgttatcc	cctgattctg	tggataaccg	tattaccgcc	tttgagttag	ctgataccgc	4500
tcgccgcagc	cgaacgaccg	agcgcagcga	gtcagtgagc	gaggaagcgg	aaga	4554

<210> 175

<211> 7141

<212> DNA

<213> pDEST28

<400> 175

atgcatgtcg	ttacataact	tacggtaaat	ggcccgccctg	gctgaccgcc	caacgacccc	60
cgccattga	cgtaataat	gacgtatgtt	cccatagtaa	cgccaatagg	gactttccat	120
tgacgtcaat	gggtggagta	tttacggtaa	actgcccact	tggcagtaca	tcaagtgtat	180
catatgccaa	gtacgcccc	tattgacgtc	aatgacggta	aatggcccg	ctggcattat	240
gcccagtaca	tgaccttatg	ggactttcct	acttggcagt	acatctacgt	attagtcac	300
gctattacca	tggatgatgcg	gttttggcag	tacatcaatg	ggcgtggata	gcggtttgac	360
tcacggggat	ttccaagtct	ccacccatt	gacgtcaatg	ggagtttgtt	ttggcaccaa	420
aatcaacggg	actttccaaa	atgtcgtaac	aactccgccc	cattgacgca	aatgggcggg	480
aggcgtgtac	gggtggaggt	ctatataagc	agagctctcc	ctatcagtga	tagagatctc	540
cctatcagtg	atagagatcg	tcgacgagct	cgttttagtg	accgtcagat	cgctggaga	600
cgccatccac	gctgttttga	cctccataga	agacaccggg	accgatccag	cctccggact	660
ctagaggatc	cctaccgggtg	atatacctga	gcccataaac	aagtttgtac	aaaaaagctg	720

aacgagaaac gtaaaatgat ataaatatca atatatataa ttagattttg cataaaaaac	780
agactacata atactgtaaa acacaacata tccagtcact atggcggccg cattaggcac	840
cccaggcttt acactttatg cttccggctc gtataatgtg tggattttga gttaggatcc	900
ggcgagatth tcaggagcta aggaagctaa aatggagaaa aaaatcactg gatataccac	960
cgttgatata tcccaatggc atcgtaaaga acattttgag gcattttcagt cagttgctca	1020
atgtacctat aaccagaccg ttcagctgga tattacggcc tttttaaaga ccgtaaagaa	1080
aaataagcac aagttttatc cggcctttat tcacattctt gcccgcctga tgaatgctca	1140
tccggaattc cgtatggcaa tgaaagacgg tgagctgggtg atatgggata gtgttcaccc	1200
ttgttacacc gttttccatg agcaaactga aacgttttca tcgctctgga gtgaatacca	1260
cgacgatttc cggcagtttc tacacatata ttcgcaagat gtggcgtgtt acggtgaaaa	1320
cctggcctat ttccctaaag ggtttattga gaatatgttt ttcgctctcag ccaatccctg	1380
ggtgagtttc accagttttg atttaaacgt ggccaatatg gacaacttct tcgccccgt	1440
tttcaccatg ggcaaataat atacgcaagg cgacaagggtg ctgatgccgc tggcgattca	1500
ggttcatcat gccgtctgtg atggcttcca tgtcggcaga atgcttaatg aattacaaca	1560
gtactgcgat gagtggcagg gcggggcgta aagatctgga tccggcttac taaaagccag	1620
ataacagtat gcgtatttgc gcgctgattt ttgcgggtata agaatatata ctgatatgta	1680
tacccgaagt atgtcaaaaa gaggtgtgct atgaagcagc gtattacagt gacagttgac	1740
agcgacagct atcagttgct caaggcatat atgatgtcaa tatctccggt ctggtaagca	1800
caaccatgca gaatgaagcc cgtcgtctgc gtgccgaacg ctggaaagcg gaaaatcagg	1860
aagggatggc tgaggtcgcc cggtttattg aaatgaacgg ctcttttgct gacgagaaca	1920
gggactgggtg aaatgcagtt taaggtttac acctataaaa gagagagccg ttatcgtctg	1980
tttgtggatg tacagagtga tattattgac acgcccgggc gacggatggg gatccccctg	2040
gccagtgcac gtctgctgtc agataaagtc tcccgtgaac tttaccgggt ggtgcatatc	2100
ggggatgaaa gctggcgcat gatgaccacc gatatggcca gtgtgccggt ctccgttata	2160
ggggaagaag tggctgatct cagccaccgc gaaaatgaca tcaaaaacgc cattaacctg	2220
atgttctggg gaatataaat gtcaggctcc cttatacaca gccagtctgc aggtcgacca	2280
tagtgactgg atatgttgtg ttttacagta ttatgtagtc tgttttttat gcaaaatcta	2340
atttaatatata ttgatattta tatcatttta cgtttctcgt tcagctttct tgtacaaagt	2400
ggttgatggg cggccgctct agagggccca agcttacgcg tgcattgcgac gtcattagctc	2460
tctccctata gtgagtcgta ttataagcta ggcactggcc gtcgttttac aacgtcgtga	2520
ctgggaaaac tgctagcttg ggatctttgt gaaggaacct tacttctgtg gtgtgacata	2580

attggacaaa	ctacctacag	agattttaaag	ctctaaggta	aatataaaat	ttttaagtgt	2640
ataatgtggt	aaactagctg	catatgcttg	ctgcttgaga	gttttgctta	ctgagtatga	2700
tttatgaaaa	tattatacac	aggagctagt	gattctaatt	gtttgtgtat	tttagattca	2760
cagtcccaag	gctcatttca	ggccccctcag	tectcacagt	ctgttcatga	tcataatcag	2820
ccataaccaca	tttgtagagg	ttttacttgc	tttaaaaaac	ctcccacacc	tccccctgaa	2880
cctgaaacat	aaaatgaatg	caattgttgt	tgttaacttg	tttattgcag	cttataatgg	2940
ttacaaataa	agcaatagca	tcacaaattt	cacaaataaa	gcattttttt	cactgcattc	3000
tagttgtggt	ttgtccaaac	tcatcaatgt	atcttatcat	gtctggatcg	atcctgcatt	3060
aatgaatcgg	ccaacgcgcg	gggagaggcg	gtttgcgtat	tggctggcgt	aatagcgaag	3120
aggccccgcac	cgatcgccct	tcccaacagt	tgcgcagcct	gaatggcgaa	tgggacgcgc	3180
cctgtagcgg	cgcattaagc	gcggcgggtg	tgggtggttac	gcgcagcgtg	accgctacac	3240
ttgccagcgc	cctagcgccc	gctcctttcg	ctttcttccc	ttcctttctc	gccacgttcg	3300
ccggctttcc	ccgtcaagct	ctaaatcggg	ggetcccttt	agggttccga	tttagtgctt	3360
tacggcacct	cgaccccaaa	aaacttgatt	agggtgatgg	ttcacgtagt	gggccatcgc	3420
cctgatagac	ggttttttcgc	cctttgacgt	tggagtccac	gttctttaat	agtggaactct	3480
tgttccaaac	tggaacaaca	ctcaacccta	tctcgggtcta	ttcttttgat	ttataaggga	3540
ttttgccgat	ttcggcctat	tggttaaaaa	atgagctgat	ttaacaaata	tttaacgcga	3600
attttaacaa	aatattaacg	tttacaattt	cgcctgatgc	ggatattttct	ccttacgcac	3660
ctgtgcggta	tttcacaccg	catacgcgga	tctgcgcagc	accatggcct	gaaataacct	3720
ctgaaagagg	aacttgggta	ggtaccttct	gaggcggaaa	gaaccagctg	tggaatgtgt	3780
gtcagttagg	gtgtggaaaag	tccccaggct	ccccagcagg	cagaagtatg	caaagcatgc	3840
atctcaatta	gtcagcaacc	agggtgtggaa	agtecccagg	ctccccagca	ggcagaagta	3900
tgcaaagcat	gcattctcaat	tagtcagcaa	ccatagtccc	gcccctaact	ccgcccattc	3960
cgccccctaac	tccgcccagt	tccgcccatt	ctccgccccca	tggctgacta	atttttttta	4020
tttatgcaga	ggccgaggcc	gcctcggcct	ctgagctatt	ccagaagtag	tgaggaggct	4080
tttttggagg	cctaggcttt	tgcaaaaagc	ttgattcttc	tgacacaaca	gtctcgaact	4140
taagaccatg	gccaagcctt	tgtctcaaga	agaatccacc	ctcattgaaa	gagcaacggc	4200
tacaatcaac	agcatcccca	tctctgaaga	ctacagcgtc	gccagcgcag	ctctctctag	4260
cgacggccgc	atcttcaactg	gtgtcaatgt	atatcatttt	actggggggac	cttgtgcaga	4320
actcgtggtg	ctgggcactg	ctgctgctgc	ggcagctggc	aacctgactt	gtatcgtcgc	4380
gatcggaat	gagaacaggg	gcattcttgag	cccctgcgga	cggtgccgac	aggtgcttct	4440



B1

cgatctgcat	cctgggatca	aagccatagt	gaaggacagt	gatggacagc	cgacggcagt	4500
tgggattcgt	gaattgctgc	cctctgggta	tgtgtgggag	ggctaagcac	ttcgtggccg	4560
agttcgaaat	gaccgaccaa	gcgacgcccc	acctgccatc	acgatggccg	caataaaata	4620
tctttatttt	cattacatct	gtgtgttggg	tttttgtgtg	aatcgatagc	gataaggatc	4680
cgcgtatggt	gcactctcag	tacaatctgc	tctgatgccg	catagttaag	ccagccccga	4740
cacccgccaa	cacccgctga	cgcgccttga	cgggcttgtc	tgctcccggc	atccgcttac	4800
agacaagctg	tgaccgtctc	cgggagctgc	atgtgtcaga	ggttttcacc	gtcatcaccg	4860
aaacgcgcga	gacgaaaggg	cctcgtgata	cgcctatttt	tatagggttaa	tgtcatgata	4920
ataatggttt	cttagacgtc	aggtggcact	tttcggggaa	atgtgcgcgg	aacccttatt	4980
tgtttatttt	tctaaataca	ttcaaatacg	tatccgctca	tgagacaata	accctgataa	5040
atgcttcaat	aatattgaaa	aaggaagagt	atgagtatcc	aacatttccg	tgtcgccttt	5100
attccctttt	ttgcggcatt	ttgccttcct	gtttttgctc	accagaaaac	gctggtgaaa	5160
gtaaaagatg	ctgaagatca	gttgggtgca	cgagtgggtt	acatcgaact	ggatctcaac	5220
agcggtaaga	tccttgagag	ttttcgcccc	gaagaacggt	ttccaatgat	gagcactttt	5280
aaagtctctg	tatgtggcgc	ggtattatcc	cgtattgacg	ccgggcaaga	gcaactcggg	5340
cgcgcgatac	actattctca	gaatgacttg	gttgagtact	caccagtcac	agaaaagcat	5400
cttacgggatg	gcatgacagt	aagagaatta	tgcagtgtcg	ccataaccat	gagtgataac	5460
actgcggcca	acttacttct	gacaacgata	ggaggaccga	aggagctaac	cgcttttttg	5520
cacaacatgg	gggatcatgt	aactcgcctt	gatcgttggg	aaccggagct	gaatgaagcc	5580
ataccaaacg	acgagcgtga	caccacgatg	cctgtagcaa	tggcaacaac	gttgcgcaaa	5640
ctattaactg	gcgaactact	tactctagct	tcccggcaac	aattaataga	ctggatggag	5700
gcggataaaag	ttgcaggacc	acttctgcgc	tccggccctc	cggctggctg	gtttattgct	5760
gataaatctg	gagccggtga	gcgtgggtct	cgcggtatca	ttgcagcact	ggggccagat	5820
ggtaagccct	cccgtatcgt	agttatctac	acgacgggga	gtcaggcaac	tatggatgaa	5880
cgaaatagac	agatcgctga	gatagggtcc	tcactgatta	agcattggta	actgtcagac	5940
caagtttact	catatatact	ttagattgat	ttaaaacttc	atttttaatt	taaaaggatc	6000
taggtgaaga	tcctttttga	taatctcatg	acaaaaatcc	cttaacgtga	gttttcgttc	6060
cactgagcgt	cagaccccg	agaaaagatc	aaaggatctt	cttgagatcc	tttttttctg	6120
cgcgtaatct	gctgcttgca	aacaaaaaaa	ccaccgctac	cagcggtggt	ttgtttgccg	6180
gatcaagagc	taccaactct	ttttccgaag	gtaactggct	tcagcagagc	gcagatacca	6240
aatactgtcc	ttctagtgtg	gccgtagtta	ggccaccact	tcaagaactc	tgtagcaccg	6300

cctacatacc	tcgctctgct	aatcctgtta	ccagtgggctg	ctgccagtgg	cgataagtcg	6360
tgtcttaccg	ggttggactc	aagacgatag	ttaccggata	aggcgcagcg	gtcgggctga	6420
acgggggggtt	cgtgcacaca	gcccagcttg	gagcgaacga	cctacaccga	actgagatac	6480
ctacagcgtg	agcattgaga	aagcgccacg	cttcccgaag	ggagaaaggc	ggacaggtat	6540
ccggtgaagcg	gcagggctcg	aacaggagag	cgcacgaggg	agcttccagg	gggaaacgcc	6600
tggtatcttt	atagtcctgt	cgggtttcgc	cacctctgac	ttgagcgtcg	atctttgtga	6660
tgctcgtcag	gggggcgag	cctatggaaa	aacgccagca	acgcggcctt	tttacggttc	6720
ctggcctttt	gctggccttt	tgtcacatg	ttctttcctg	cgttatcccc	tgattctgtg	6780
gataaccgta	ttaccgcctt	tgagtgaact	gataccgctc	gccgcagccg	aacgaccgag	6840
cgcagcaggt	cagtgaacga	ggaagcggaa	gagcgcccaa	tacgcaaacc	gcctctcccc	6900
gcgcgttggc	cgattcatta	atgcagagct	tgcaattcgc	gcgtttttca	atattattga	6960
agcatttatc	aggggtattg	tctcatgagc	ggatacatat	ttgaatgtat	ttagaaaaat	7020
aaacaaatag	gggttcgcg	cacatttccc	cgaaaagtgc	cacctgacgt	ctaagaaacc	7080
attattatca	tgacattaac	ctataaaaaat	aggcgtagta	cgaggccctt	tcactcatta	7140
g						7141

<210> 176

<211> 7156

<212> DNA

<213> pDEST29

<400> 176

atgcatgtcg	ttacataact	tacggtaa	at ggcccgctg	gctgaccgcc	caacgacccc	60
cgccattga	cgtcaataat	gacgtatgtt	cccatagtaa	cgccaatagg	gactttccat	120
tgacgtcaat	gggtggagta	tttacggtaa	actgccact	tggcagtaca	tcaagtgtat	180
catatgcaa	gtacgcccc	tattgacgtc	aatgacggta	aatggccgc	ctggcattat	240
gcccagtaca	tgaccttatg	ggactttcct	acttggcagt	acatctacgt	attagtcac	300
gctattacca	tggtgatgcg	gttttggcag	tacatcaatg	ggcgtggata	gcggtttgac	360
tcacggggat	ttccaagtct	ccacccatt	gacgtcaatg	ggagtttggt	ttggcaccaa	420
aatcaacggg	actttccaaa	atgtcgtaac	aactccgcc	cattgacgca	aatggggcgt	480
aggcgtgtac	gggtgggagg	ctatataagc	agagctctcc	ctatcagtga	tagagatctc	540
cctatcagtg	atagagatcg	tcgacgagct	cgtttagtga	accgtcagat	cgccctggaga	600

cgccatccac gctgttttga cctccataga agacaccggg accgatccag cctccggacc 660  
atggcgctact accatcacca tcaccatcac accggtgata tctcgcagcc catcacaagt 720  
ttgtacaaaa aagctgaacg agaaacgtaa aatgatataa atatcaatat attaaattag 780  
attttgcata aaaaacagac tacataatac tgtaaaacac aacatatcca gtcactatgg 840  
cgcccgcatc aggcacccca ggctttacac tttatgcttc cggctcgtat aatgtgtgga 900  
ttttgagtta ggatccggcg agattttcag gagctaagga agctaaaatg gagaaaaaaa 960  
tcaactggata taccaccgtt gatatatccc aatggcatcg taaagaacat tttgaggcat 1020  
ttcagtcagt tgctcaatgt acctataacc agaccgttca gctggatatt acggcctttt 1080  
taaagaccgt aaagaaaaat aagcacaagt tttatccggc ctttattcac attcttgccc 1140  
gcctgatgaa tgctcatccg gaattccgta tggcaatgaa agacggtgag ctggtgatat 1200  
gggatagtgt tcacccttgt tacaccgttt tccatgagca aactgaaacg ttttcatcgc 1260  
tctggagtga ataccacgac gatttccggc agtttctaca catatatcgc caagatgtgg 1320  
cgtgttaacg tgaaaacctg gcctatttcc cttaaagggtt tattgagaat atgtttttcg 1380  
tctcagccaa tccctgggtg agtttcacca gttttgattt aaacgtggcc aatatggaca 1440  
acttcttcgc ccccgtttcc accatgggca aatattatac gcaaggcgac aaggtgctga 1500  
tgccgctggc gattcaggtt catcatgccg tctgtgatgg cttccatgtc ggcagaatgc 1560  
ttaatgaatt acaacagtac tgcgatgagt ggcagggcgg ggcgtaaacg cgtggatccg 1620  
gcttactaaa agccagataa cagtatgcgt atttgccgcg tgatttttgc ggtataagaa 1680  
tatatactga tatgtatacc cgaagtatgt caaaaagagg tgtgctatga agcagcgtat 1740  
tacagtgaca gttgacagcg acagctatca gttgctcaag gcatatatga tgtcaatata 1800  
tccggtctgg taagcacaac catgcagaat gaagcccgtc gtctgcgtgc cgaacgctgg 1860  
aaagcggaaa atcaggaagg gatggctgag gtcgcccggg ttattgaaat gaacggctct 1920  
tttgctgacg agaacaggga ctggtgaaat gcagtttaag gtttacacct ataaaagaga 1980  
gagccgttat cgtctgtttg tggatgtaca gagtgatatt attgacacgc ccgggcgacg 2040  
gatggtgatc cccttgcca gtgcacgtct gctgtcagat aaagtctccc gtgaacttta 2100  
cccgggtggtg catatcgggg atgaaagctg gcgcatgatg accaccgata tggccagtgt 2160  
gccggtctcc gttatcgggg aagaagtggc tgatctcagc caccgcgaaa atgacatcaa 2220  
aaacgccatt aacctgatgt tctggggaat ataaatgtca ggctccgtta tacacagcca 2280  
gtctgcaggt cgaccatagt gactggatat gttgtgtttt acagtattat gtagtctgtt 2340  
ttttatgcaa aatctaattt aatatattga tatttatata attttacgtt tctcgttcag 2400  
ctttcttgta caaagtgggtg atgggcggcc gctctagagg gcccaagctt acgcgtgcat 2460

B1

gcgacgtcat	agctctctcc	ctatagtgag	tcgtattata	agctaggcac	tggccgtcgt	2520
tttacaacgt	cgtgactggg	aaaactgcta	gcttgggata	tttgtgaagg	aaccttactt	2580
ctgtggtgtg	acataattgg	acaaactacc	tacagagatt	taaagctcta	aggtaaatat	2640
aaaattttta	agtgtataat	gtgttaaact	agctgcatat	gcttgctgct	tgagagtttt	2700
gcttactgag	tatgatttat	gaaaatatta	tacacaggag	ctagtgattc	taattgtttg	2760
tgtatttttag	attcacagtc	ccaaggctca	tttcaggccc	ctcagtcctc	acagtctggt	2820
catgatcata	atcagccata	ccacatttgt	agaggtttta	cttgctttaa	aaaacctccc	2880
acacctcccc	ctgaacctga	aacataaaat	gaatgcaatt	gttggtgtta	acttgtttat	2940
tgcagcttat	aatggttaca	aataaagcaa	tagcatcaca	aatttcacaa	ataaagcatt	3000
tttttctactg	cattctagtt	gtggtttgtc	caaactcatc	aatgtatctt	atcatgtctg	3060
gatcgatcct	gcattaatga	atcggccaac	gcgcggggag	aggcggtttg	cgtattggct	3120
ggcgtaatag	cgaagaggcc	cgcaccgate	gcccttccca	acagttgcgc	agcctgaatg	3180
gcgaatggga	cgcgccctgt	agcggcgcac	taagcgcggc	gggtgtggtg	gttacgcgca	3240
gcgtgaccgc	tacacttgcc	agcgccctag	cgcgcgctcc	tttcgctttc	ttcccttccct	3300
ttctcgccac	gttcgccggc	tttccccgct	aagctctaaa	tcggggggctc	ccttttaggg	3360
tccgatttag	tgctttacgg	cacctcgacc	ccaaaaaact	tgattagggg	gatgggtcac	3420
gtagtgggccc	atcgccctga	tagacggttt	ttcgcccttt	gacgttgagg	tccacgttct	3480
ttaatagtgg	actcttggtc	caaactggaa	caaacactcaa	ccctatctcg	gtctattctt	3540
ttgattttata	agggattttg	ccgatttcgg	cctattgggt	aaaaaatgag	ctgatttaac	3600
aaatatttta	cgcgaatttt	aacaaaatat	taacgtttac	aatttcgcct	gatgcgggat	3660
tttctcctta	cgcactctgt	cggtatttca	caccgcatac	gcggatctgc	gcagcaccat	3720
ggcctgaaat	aacctctgaa	agaggaactt	ggttaggtac	cttctgaggc	ggaaagaacc	3780
agctgtggaa	tgtgtgtcag	ttaggggtgt	gaaagtcccc	aggctcccca	gcaggcagaa	3840
gtatgcaaag	catgcatctc	aattagtcag	caaccagggt	tggaaagtcc	ccaggctccc	3900
cagcaggcag	aagtatgcaa	agcatgcate	tcaattagtc	agcaaccata	gtcccgcgcc	3960
taactccgcc	catcccgcgc	ctaactccgc	ccagttccgc	ccattctccg	ccccatggct	4020
gactaatttt	ttttatttat	gcagaggccg	aggccgcctc	ggcctctgag	ctattccaga	4080
agtagtgagg	aggctttttt	ggaggccctag	gcttttgcaa	aaagcttgat	tcttctgaca	4140
caacagtctc	gaacttaaga	ccatggccaa	gcctttgtct	caagaagaat	ccacctcat	4200
tgaaagagca	acggctacaa	tcaacagcat	ccccatctct	gaagactaca	gcgtcgccag	4260
cgcagctctc	tctagcgacg	gccgcactct	cactgggtgt	aatgtatata	attttactgg	4320

gggaccttgt gcagaactcg tgggtgctggg cactgctgct gctgcggcag ctggcaacct 4380  
gacttgatc gtcgcatcg gaaatgagaa caggggcatc ttgagcccct gcggacgggtg 4440  
ccgacaggtg cttctcgatc tgcacacctg gatcaaagcc atagtgaagg acagtgatgg 4500  
acagccgacg gcagttggga ttcgtgaatt gctgccctct gggttatgtgt gggagggcta 4560  
agcacttcgt ggccgagttc gaaatgaccg accaagcgac gcccaacctg ccatcacgat 4620  
ggccgcaata aaatatcttt attttcatta catctgtgtg ttggtttttt gtgtgaatcg 4680  
atagcgataa ggatccgct atggtgcact ctcatgataa tctgctctga tgccgcatag 4740  
ttaagccagc cccgacaccc gccaacaccc gctgacgcgc cctgacgggc ttgtctgctc 4800  
ccggcatccg cttacagaca agctgtgacc gtctccggga gctgcatgtg tcagaggttt 4860  
tcaccgtcat caccgaaacg cgcgagacga aagggcctcg tgatacgctt atttttatag 4920  
gttaatgtca tgataataat ggtttcttag acgtcagggtg gcacttttcg gggaaatgtg 4980  
cgcggaaccc ctatttgttt atttttctaa atacattcaa atatgtatcc gctcatgaga 5040  
caataaccct gataaatgct tcaataatat tgaaaaagga agagtatgag tattcaacat 5100  
ttccgtgtcg cccttatcc cttttttgcg gcattttgcc ttctgtttt tgctcaccca 5160  
gaaacgctgg tgaaagtaaa agatgctgaa gatcagttgg gtgcacgagt gggttacatc 5220  
gaactggatc tcaacagcgg taagatcctt gagagttttc gccccgaaga acgttttcca 5280  
atgatgagca cttttaaagt tctgctatgt ggcgcggtat tatcccgat tgacgccggg 5340  
caagagcaac tcggtcgccg catacactat tctcagaatg acttggttga gtactcacca 5400  
gtcacagaaa agcatcttac ggatggcatg acagtaagag aattatgcag tgctgccata 5460  
accatgagtg ataacactgc ggccaactta cttctgacaa cgatcggagg accgaaggag 5520  
ctaaccgctt ttttgacaa catgggggat catgtaactc gccttgatcg ttgggaaccg 5580  
gagctgaatg aagccatacc aaacgacgag cgtgacacca cgatgcctgt agcaatggca 5640  
acaacgttgc gcaaactatt aactggcgaa ctacttactc tagcttcccg gcaacaatta 5700  
atagactgga tggaggcgga taaagttgca ggaccacttc tgcgctcggc ctttcggct 5760  
ggctggttta ttgctgataa atctggagcc ggtgagcgtg ggtctcggg tatcattgca 5820  
gcactggggc cagatggtaa gccctcccg atcgtagtta tctacacgac ggggagtcag 5880  
gcaactatgg atgaacgaaa tagacagatc gctgagatag gtgcctcact gattaagcat 5940  
tggttaactgt cagaccaagt ttactcatat atactttaga ttgatttaaa acttcatttt 6000  
taatttaaaa ggatctaggt gaagatcctt tttgataatc tcatgaccaa aatcccttaa 6060  
cgtgagtttt cgttcactg agcgtcagac cccgtagaaa agatcaaagg atcttcttga 6120  
gatccttttt ttctgcgct aatctgctgc ttgcaaacaa aaaaaccacc gctaccagcg 6180

B1

gtgggtttggt tgccggatca agagctacca actcttttttc cgaaggtaac tggcttcagc 6240  
agagcgcaga taccaaatac tgtccttcta gtgtagccgt agttaggcca ccacttcaag 6300  
aactctgtag caccgcctac atacctcgct ctgctaatacc tgttaccagt ggctgctgcc 6360  
agtggcgata agtcgtgtct taccggggtg gactcaagac gatagttacc ggataaggcg 6420  
cagcggtcgg gctgaacggg gggttcgtgc acacagccca gcttggagcg aacgacctac 6480  
accgaactga gatactaca gcgtgagcat tgagaaagcg ccacgcttcc cgaagggaga 6540  
aaggcggaca ggtatccggt aagcggcagg gtcggaacag gagagcgac gagggagctt 6600  
ccagggggaa acgcttggtg tctttatagt cctgtcgggt ttcgccacct ctgacttgag 6660  
cgtcgatttt tgtgatgctc gtcagggggg cggagcctat ggaaaaacgc cagcaacgcg 6720  
gcctttttac gggttcctggc cttttgctgg ccttttgctc acatgttctt tcctgcgtta 6780  
tcccctgatt ctgtggataa ccgtattacc gcctttgagt gagctgatac cgctcgccgc 6840  
agccgaacga ccgagcgcag cgagtcagtg agcgaggaag cggaagagcg cccaatacgc 6900  
aaaccgcctc tccccgcgcg ttggccgatt cattaatgca gagcttgcaa ttcgcgcgtt 6960  
tttcaatatt attgaagcat ttatcagggg tattgtctca tgagcggata catatttgaa 7020  
tgtatttaga aaaataaaca aataggggtt ccgcgcacat ttccccgaaa agtgccacct 7080  
gacgtctaag aaaccattat tatcatgaca ttaacctata aaaataggcg tagtacgagg 7140  
ccctttcact cattag 7156

<210> 177

<211> 7544

<212> DNA

<213> pDEST30

<400> 177

atgcatgtcg ttacataact tacggtaaata ggcccgcctg gctgaccgcc caacgacccc 60  
cgccattga cgtcaataat gacgtatggt cccatagtaa cgccaatagg gactttccat 120  
tgacgtcaat gggtaggagta ttacggtaa actgcccact tggcagtaca tcaagtgtat 180  
catatgccaa gtacgcccc tattgacgtc aatgacggta aatggcccgct ctggcattat 240  
gcccagtaca tgaccttatg ggactttcct acttggcagt acatctacgt attagtcac 300  
gctattacca tgggtgatgcg gttttggcag tacatcaatg ggcgtggata gcggtttgac 360  
tcacggggat ttccaagtct ccacccatt gacgtcaatg ggagtttggt ttggcaccaa 420  
aatcaacggg actttccaaa atgtcgtaac aactccgccc cattgacgca aatgggcggt 480

aggcgtgtac ggtgggaggt ctatataagc agagctctcc ctatcagtga tagagatctc 540  
cctatcagtg atagagatcg tcgacgagct cgttttagtga accgtcagat cgcctggaga 600  
cgccatccac gctgttttga cctccataga agacaccggg accgatccag cctccggact 660  
ctagaggatc cctaccggtg atatcctcga gcccatcaac aagtttgtac aaaaaagctg 720  
aacgagaaac gtaaaatgat ataaatatca atatattaaa ttagattttg cataaaaaac 780  
agactacata atactgtaaa acacaacata tccagtcact atggcggccg cattaggcac 840  
cccaggcttt acactttatg cttccggctc gtataatgtg tggattttga gttaggatcc 900  
ggcgagatth tcaggagcta aggaagctaa aatggagaaa aaaatcactg gatataccac 960  
cgttgatata tcccaatggc atcgtaaaga acattttgag gcatttcagt cagttgctca 1020  
atgtacctat aaccagaccg ttcagctgga tattacggcc tttttaaaga ccgtaaagaa 1080  
aaataagcac aagttttatc cggcctttat tcacattctt gccgcctga tgaatgctca 1140  
tccggaattc cgtatggcaa tgaaagacgg tgagctggtg atatgggata gtgttcaccc 1200  
ttgttacacc gttttccatg agcaaactga aacgttttca tcgctctgga gtgaatacca 1260  
cgacgatttc cggcagtttc tacacatata ttcgcaagat gtggcgtgtt acggtgaaaa 1320  
cctggcctat ttccttaaag ggtttattga gaatatgttt ttcgtctcag ccaatccctg 1380  
ggtgagtttc accagttttg atttaaacgt ggccaatatg gacaacttct tcgccccgt 1440  
tttcaccatg ggcaaatatt atacgcaagg cgacaagggt ctgatgccgc tggcgattca 1500  
ggttcacat gccgtctgtg atggcttcca tgtcggcaga atgcttaatg aattacaaca 1560  
gtactgcgat gagtggcagg gcggggcgta aagatctgga tccggcttac taaaagccag 1620  
ataacagtat gcgtatttgc gcgctgattt ttgcggtata agaatatata ctgatatgta 1680  
taccgaagt atgtcaaaaa gaggtgtgct atgaagcagc gtattacagt gacagttgac 1740  
agcgacagct atcagttgct caaggcatat atgatgtcaa tatctccggt ctggttaagca 1800  
caaccatgca gaatgaagcc cgtcgtctgc gtgccgaacg ctggaaagcg gaaaatcagg 1860  
aagggatggc tgaggtcgcc cggtttattg aaatgaacgg ctcttttctg gacgagaaca 1920  
gggactggtg aaatgcagtt taaggtttac acctataaaa gagagagccg ttatcgtctg 1980  
tttgtggatg tacagagtga tattattgac acgcccgggc gacggatggt gatccccctg 2040  
gccagtgcac gtctgtctgc agataaagtc tcccgtgaac ttaccgggt ggtgcatatc 2100  
ggggatgaaa gctggcgcat gatgaccacc gatatggcca gtgtgccggt ctccgttatac 2160  
ggggaagaag tggctgatct cagccaccgc gaaaatgaca tcaaaaacgc cattaacctg 2220  
atgttctggg gaatataaat gtcaggctcc cttatacaca gccagtctgc aggtcgacca 2280  
tagtgactgg atatgttgtg ttttacagta ttatgtagtc tgttttttat gcaaaatcta 2340

B1

atttaatatata ttgatattta tatcatttta cgttttctcgt tcagcttttct tgtacaaagt 2400  
ggttgatggg cggccgctct agagggccca agcttacgcg tgcattgacg gtcattagctc 2460  
tctccctata gtgagtcgta ttataagcta ggcaactggcc gtcgtttttac aacgtcgtga 2520  
ctgggaaaaac tgctagcttg ggatctttgt gaaggaacct tacttctgtg gtgtgacata 2580  
attggacaaa ctacctacag agatttaaag ctctaaggta aatataaaat ttttaagtgt 2640  
ataatgtgtt aaactagctg catatgcttg ctgcttgaga gttttgctta ctgagtatga 2700  
tttatgaaaa tattatacac aggagctagt gattctaatt gtttgtgtat tttagattca 2760  
cagtcaccaag gctcatttca ggccctcag tcctcacagt ctgttcatga tcataatcag 2820  
ccataccaca tttgtagagg ttttacttgc tttaaaaaac ctccacacc tccccctgaa 2880  
cctgaaacat aaaatgaatg caattgttgt tgttaacttg tttattgcag cttataatgg 2940  
ttacaaataa agcaatagca tcacaaattt cacaaataaa gcattttttt cactgcattc 3000  
tagttgtggt ttgtccaaac tcatcaatgt atcttatcat gtctggatcg atcctgcatt 3060  
aatgaatcgg ccaacgcgcg gggagaggcg gtttgcgat tggctggcgt aatagcgaag 3120  
aggcccgcac cgatcgccct tcccaacagt tgcgcagcct gaatggcgaa tgggacgcgc 3180  
cctgtagcgg cgcatthaagc gcggcgggtg tgggtggttac gcgcagcgtg accgctacac 3240  
ttgccagcgc cctagcgccc gctcctttcg ctttcttccc ttcttttctc gccacgttcg 3300  
ccggctttcc ccgtcaagct ctaaactcggg ggctcccttt agggttccga tttagtgcct 3360  
tacggcacct cgaccccaaa aaacttgatt aggggtgatg ttcacgtagt gggccatcgc 3420  
cctgatagac ggtttttcgc cctttgacgt tggagtccac gttctttaat agtggactct 3480  
tgttccaaac tggaaacaaca ctcaacccta tctcgggtcta ttcttttgat ttataagggga 3540  
ttttgccgat ttcggcctat tgggttaaaaa atgagctgat ttaacaaata tttaacgcga 3600  
attttaacaa aatattaacg tttacaattt cgctgatgc ggtattttct ccttacgcat 3660  
ctgtgcggta tttcacaccg catagcgga tctgcgcagc accatggcct gaaataacct 3720  
ctgaaagagg aacttggtta ggtaccttct gagggcgaaa gaaccagctg tggaatgtgt 3780  
gtcagttagg gtgtggaaag tccccaggct cccagcagg cagaagtatg caaagcatgc 3840  
atctcaatta gtcagcaacc aggtgtggaa agtccccagg ctccccagca ggcagaagta 3900  
tgcaaagcat gcatttcaat tagtcagcaa ccatagtccc gcccttaact ccgcccattc 3960  
cgccctaac tccgcccagt tccgcccatt ctccgccccca tggctgacta atttttttta 4020  
tttatgcaga ggccgaggcc gcctcggcct ctgagctatt ccagaagtag tgaggaggct 4080  
tttttgagg cctaggcttt tgcaaaaagc ttgattcttc tgacacaaca gtctcgaact 4140  
taaggctaga gccaccatga ttgaacaaga tggattgcac gcaggttctc cggccgcttg 4200



gggtggagagg ctattcggct atgactgggc acaacagaca atcggctgct ctgatgccgc 4260  
cgtgttccgg ctgtcagcgc aggggcgccc ggttcctttt gtcaagaccg acctgtccgg 4320  
tgccctgaat gaactgcagg acgaggcagc gcggtatcgc tggctggcca cgacgggcgt 4380  
tccttgcgca gctgtgctcg acgttgctac tgaagcggga agggactggc tgctattggg 4440  
cgaagtgccg gggcaggatc tcctgtcatc tcaccttgct cctgccgaga aagtatccat 4500  
catggctgat gcaatgcggc ggctgcatac gcttgatccg gctacctgcc cattcgacca 4560  
ccaagcgaaa catcgcatcg agcgagcacg tactcggatg gaagccggtc ttgtcgatca 4620  
ggatgatctg gacgaagagc atcaggggct cgcgccagcc gaactgttcg ccaggctcaa 4680  
ggcgcgcagt cccgacggcg aggatctcgt cgtgacccat ggcgatgcct gcttgccgaa 4740  
tatcatggtg gaaaatggcc gcttttctgg attcatcgac tgtggccggc tgggtgtggc 4800  
ggaccgctat caggacatag cgttggctac ccgtgatatt gctgaagagc ttggcggcga 4860  
atgggctgac cgcttcctcg tgctttacgg tategccgct cccgattcgc agcgcacgc 4920  
cttctatcgc cttcttgacg agttcttctg agcgggactc tggggttcga aatgaccgac 4980  
caagcgacgc ccaacctgcc atcacgatgg ccgcaataaa atatctttat tttcattaca 5040  
tctgtgtgtt ggttttttgt gtgaatcgat agcgataagg atccgcgtat ggtgcactct 5100  
cagtacaatc tgctctgat ccgcatagtt aagccagccc cgacaccgc caacaccgc 5160  
tgacgcgccc tgacgggctt gtctgtccc ggcacccgct tacagacaag ctgtgaccgt 5220  
ctccgggagc tgcagtgtgc agagggttttc accgtcatca ccgaaacgcg cgagacgaaa 5280  
gggcctcgtg atacgcctat ttttataggt taatgtcatg ataataatgg tttcttagac 5340  
gtcagggtggc acttttcggg gaaatgtgcg cggaaccctc atttgtttat ttttctaaat 5400  
acattcaaat atgtatccgc tcatgagaca ataacctga taaatgcttc aataatattg 5460  
aaaaaggaag agtatgagta ttcaacattt ccgtgtcgcc cttattccct tttttgcggc 5520  
attttgctt cctgtttttg ctcaccaga aacgctgggtg aaagtaaaag atgctgaaga 5580  
tcagttgggt gcacgagtgg gttacatcga actggatctc aacagcggta agatccttga 5640  
gagttttcgc cccgaagaac gttttccaat gatgagcact tttaaagttc tgctatgtgg 5700  
cgcggtatta tcccgtattg acgccgggca agagcaactc ggtcgccgca tacactattc 5760  
tcagaatgac ttggttgagt actcaccagt cacagaaaag catcttacgg atggcatgac 5820  
agtaagagaa ttatgcagt ctgccataac catgagtgat aacactgcgg ccaacttact 5880  
tctgacaacg atcggaggac cgaaggagct aaccgctttt ttgcacaaca tgggggatca 5940  
tgtaactcgc cttgatcgtt gggaaaccgga gctgaatgaa gccataccaa acgacgagcg 6000  
tgacaccacg atgcctgtag caatggcaac aacgttgccg aaactattaa ctggcgaact 6060

B1

acttactcta	gcttcccggc	aacaattaat	agactggatg	gaggcggata	aagttgcagg	6120
accatttctg	cgctcggccc	ttccggctgg	ctggttttatt	gctgataaat	ctggagccgg	6180
tgagcgtggg	tctcgcggta	tcattgcagc	actggggcca	gatggtaagc	cctcccgtat	6240
cgtagttatc	tacacgacgg	ggagtcaggc	aactatggat	gaacgaaata	gacagatcgc	6300
tgagataggt	gcctcactga	ttaagcattg	gtaactgtca	gaccaagttt	actcatatat	6360
acttttagatt	gatttaaaac	ttcattttta	attttaaagg	atctaggtga	agatcctttt	6420
tgataatctc	atgaccaaaa	tcctttaacg	tgagttttcg	ttccactgag	cgtcagaccc	6480
cgtagaaaag	atcaaaggat	cttcttgaga	tccttttttt	ctgcgcgtaa	tctgctgctt	6540
gcaaacaaaa	aaaccaccgc	taccagcggg	ggtttgtttg	ccggatcaag	agctaccaac	6600
tctttttccg	aaggtaactg	gcttcagcag	agcgcagata	ccaaatactg	tccttctagt	6660
gtagccgtag	ttagggccacc	acttcaagaa	ctctgtagca	ccgcctacat	acctcgctct	6720
gctaatactg	ttaccagtgg	ctgctgccag	tggcgataag	tcgtgtctta	ccgggttgga	6780
ctcaagacga	tagttaccgg	ataaggcgca	gcggtcgggc	tgaacggggg	gttcgtgcac	6840
acagcccagc	ttggagcgaa	cgacctacac	cgaactgaga	tacctacagc	gtgagcattg	6900
agaaagcgcc	acgcttcccg	aaggggagaaa	ggcggacagg	tatccggtaa	gcggcagggg	6960
cggaacagga	gagcgcacga	gggagcttcc	agggggaaac	gcctgggtatc	tttatagtcc	7020
tgtcggggtt	cgccacctct	gacttgagcg	tcgatttttg	tgatgctcgt	caggggggcg	7080
gagcctatgg	aaaaacgcca	gcaacgcggc	cttttttacgg	ttcctggcct	tttgctggcc	7140
ttttgctcac	atgttctttc	ctgcgttata	ccctgattct	gtggataacc	gtattaccgc	7200
ctttgagtga	gctgataccg	ctcgccgcag	ccgaacgacc	gagcgcagcg	agtcagtga	7260
cgaggaagcg	gaagagcgcc	caatacgcaa	accgcctctc	cccgcgcgtt	ggccgattca	7320
ttaatgcaga	gcttgcaatt	cgcgcgtttt	tcaatattat	tgaagcattt	atcagggtta	7380
ttgtctcatg	agcggataca	tatttgaatg	tatttagaaa	aataaacaaa	taggggttcc	7440
gcgcacattt	ccccgaaaag	tgccacctga	cgtctaagaa	accattatta	tcatgacatt	7500
aacctataaa	aataggcgta	gtacgaggcc	ctttcactca	ttag		7544

<210> 178

<211> 7559

<212> DNA

<213> pDEST31

<400> 178

atgcatgtcg ttacataact tacggtaaat ggcccgccctg gctgaccgcc caacgacccc 60  
cgcccattga cgtcaataat gacgtatggt cccatagtaa cgccaatagg gactttccat 120  
tgacgtcaat ggggtggagta tttacggtaa actgcccact tggcagtaca tcaagtgtat 180  
catatgccaa gtacgcccc tattgacgtc aatgacggta aatggcccg ctaggcattat 240  
gcccagtaca tgaccttatg ggactttcct acttggcagt acatctacgt attagtcac 300  
gctattacca tggatgatgcg gttttggcag tacatcaatg ggcgtggata gcggtttgac 360  
tcacggggat ttccaagtct ccacccatt gacgtcaatg ggagtttgtt ttggcaccaa 420  
aatcaacggg actttccaaa atgtcgtaac aactccgcc cattgacgca aatgggagggt 480  
aggcgtgtac ggtgggaggt ctatataagc agagctctcc ctatcagtga tagagatctc 540  
cctatcagtg atagagatcg tcgacgagct cgttttagtga accgtcagat cgcttgaga 600  
cgccatccac gctgttttga cctccataga agacacggg accgatccag cctccggacc 660  
atggcgact accatcacca tcaccatcac accggtgata tctcgagcc catcacaagt 720  
ttgtacaaaa aagctgaacg agaaacgtaa aatgatataa atatcaatat attaaattag 780  
attttgcata aaaaacagac tacataatac tgtaaaacac aacatatcca gtcactatgg 840  
cgcccgcat aggacccca ggctttacac tttatgcttc cggctcgtat aatgtgtgga 900  
ttttgagtta ggatccggcg agattttcag gagctaagga agctaaaatg gagaaaaaaa 960  
tactggata taccaccgtt gatatatccc aatggcatcg taaagaacat tttgaggcat 1020  
ttcagtcagt tgctcaatgt acctataacc agaccgttca gctggatatt acggcctttt 1080  
taaagaccgt aaagaaaaat aagcacaagt tttatccggc ctttattcac attcttgccc 1140  
gcctgatgaa tgctcatccg gaattccgta tggcaatgaa agacggtgag ctggtgatat 1200  
gggatagtgt tcacccttgt tacaccgttt tccatgagca aactgaaacg ttttcatcgc 1260  
tctggagtga ataccacgac gatttccggc agtttctaca catatattcg caagatgtgg 1320  
cgtgttacgg tgaaaacctg gcctatttcc ctaaagggtt tattgagaat atgtttttcg 1380  
tctcagccaa tccctgggtg agtttcacca gttttgattt aaacgtggcc aatatggaca 1440  
acttcttcgc ccccgtttt accatgggca aatattatac gcáaggcgac aaggtgctga 1500  
tgccgctggc gattcaggtt catcatgccg tctgtgatgg cttccatgtc ggcagaatgc 1560  
ttaatgaatt acaacagtac tgcgatgagt ggcagggcgg ggcgtaaacg cgtggatccg 1620  
gcttactaaa agccagataa cagtatgcgt atttgccgcg tgatttttgc ggtataagaa 1680  
tatatactga tatgtatacc cgaagtatgt caaaaagagg tgtgctatga agcagcgtat 1740  
tacagtgaca gttgacagcg acagctatca gttgctcaag gcatatatga tgtcaatac 1800  
tccggtctgg taagcacaac catgcagaat gaagcccgtc gtctgcgtgc cgaacgctgg 1860

B 1

aaagcggaaa atcaggaagg gatggctgag gtcgcccggg ttattgaaat gaacggctct 1920  
tttgctgacg agaacaggga ctggtgaaat gcagtttaag gtttacacct ataaaagaga 1980  
gagccgttat cgtctgtttg tggatgtaca gagtgatatt attgacacgc ccgggcgacg 2040  
gatggtgatc cccctggcca gtgcacgtct gctgtcagat aaagtctccc gtgaacttta 2100  
cccggtggtg catatcgggg atgaaagctg gcgcatgatg accaccgata tggccagtgt 2160  
gccggtctcc gttatcgggg aagaagtggc tgatctcagc caccgcgaaa atgacatcaa 2220  
aaacgccatt aacctgatgt tctggggaat ataaatgtca ggctccgtta tacacagcca 2280  
gtctgcaggt cgaccatagt gactggatat gttgtgtttt acagtattat gtagtctgtt 2340  
ttttatgcaa aatctaattt aatatattga tatttatatc attttacgtt tctcgttcag 2400  
ctttcttgta caaagtgggt atgggcgggc gctctagagg gcccaagctt acgcgtgcat 2460  
gcgacgtcat agctctctcc ctatagttag tegtattata agctaggcac tggccgtcgt 2520  
tttacaacgt cgtgactggg aaaactgcta gcttgggagc tttgtgaagg aaccttactt 2580  
ctgtggtgtg acataattgg acaaactacc tacagagatt taaagctcta aggtaaatat 2640  
aaaattttta agtgtataat gtgttaaact agctgcatat gcttgctgct tgagagtttt 2700  
gcttactgag tatgatttat gaaaatatta tacacaggag ctagtgatcc taattgtttg 2760  
tgtattttag attcacagtc ccaaggctca tttcaggccc ctcatctctc acagtctgtt 2820  
catgatcata atcagccata ccacatttgt agaggtttta cttgctttaa aaaacctccc 2880  
acacctcccc ctgaacctga aacataaaat gaatgcaatt gttgttggtta acttgtttat 2940  
tgcagcttat aatggttaca aataaagcaa tagcatcaca aatttcacaa ataaagcatt 3000  
tttttactg cattctagtt gtggtttgtc caaactcatc aatgtatctt atcatgtctg 3060  
gatcgatcct gcattaatga atcggccaac gcgcggggag aggcgggtttg cgtattggct 3120  
ggcgtaatag cgaagaggcc cgcaccgacg gcccttccca acagttgcgc agcctgaatg 3180  
gcgaatggga cgcgcctgt agcggcgcat taagcgcggc ggggtgtggtg gttacgcgca 3240  
gcgtgaccgc tacacttgcc agcgccctag cgcccgtcc tttcgtttc ttcccttctt 3300  
ttctcgccac gttcgccggc tttccccgtc aagctctaaa tcggggggtc ctttaggggt 3360  
tccgatttag tgctttacgg cacctcgacc ccaaaaaact tgattagggt gatggttcac 3420  
gtagtgggcc atcgccctga tagacggttt ttgcgccctt gacgttgag tccacgttct 3480  
ttaatagtgg actcttggtc caaactggaa caaactcaa ccctatctcg gtctattctt 3540  
ttgatttata agggattttg ccgatttcgg cctattgggt aaaaaatgag ctgatttaac 3600  
aaatatttaa cgcgaatttt aacaaaatat taacgtttac aatttcgcct gatgcggtat 3660  
tttctcctta cgcactctgt cggtatttca caccgcatac gcggatctgc gcagcaccat 3720

B1

ggcctgaaat	aacctctgaa	agaggaactt	ggtaggtac	cttctgaggc	ggaaagaacc	3780
agctgtggaa	tgtgtgtcag	ttaggggtgtg	gaaagtcccc	aggctcccca	gcaggcagaa	3840
gtagtcaaag	catgcatctc	aattagtcag	caaccagggtg	tggaaagtcc	ccaggctccc	3900
cagcaggcag	aagtatgcaa	agcatgcatc	tcaattagtc	agcaaccata	gtcccccccc	3960
taactccgcc	catccccccc	ctaactccgc	ccagttccgc	ccattctccg	ccccatggct	4020
gactaatttt	ttttatttat	gcagaggccg	aggccgcctc	ggcctctgag	ctattccaga	4080
agtagtgagg	aggctttttt	ggaggcctag	gcttttgcaa	aaagcttgat	tcttctgaca	4140
caacagtctc	gaacttaagg	ctagagccac	catgattgaa	caagatggat	tgcacgcagg	4200
ttctccggcc	gcttgggtgg	agaggctatt	cggctatgac	tgggcacaac	agacaatcgg	4260
ctgctctgat	gccgccgtgt	tccggctgtc	agcgcagggg	cggccggttc	tttttgtcaa	4320
gaccgacctg	tccggtgccc	tgaatgaact	gcaggacgag	gcagcgcggc	tatcgtgggt	4380
ggccacgacg	ggcgttccct	gcgcagctgt	gctcgacgtt	gtcactgaag	cgggaagggg	4440
ctggctgcta	ttgggcgaag	tgccggggca	ggatctcctg	tcatctcacc	ttgctcctgc	4500
cagaaaagta	tccatcatgg	ctgatgcaat	gcggcggctg	catacgcttg	atccggctac	4560
ctgcccattc	gaccaccaag	cgaacatcgc	catcgagcga	gcacgtactc	ggatggaagc	4620
cggctcttgc	gatcaggatg	atctggacga	agagcatcag	gggctcgcgc	cagccgaact	4680
gttcgccagg	ctcaaggcgc	gcattgcccga	cggcgaggat	ctcgtcgtga	cccatggcga	4740
tgctgtcttg	ccgaatatca	tgggtgaaaa	tggccgcttt	tctggattca	tcgactgtgg	4800
ccggctgggt	gtggcggacc	gctatcagga	catagcgttg	gctaccctg	atattgctga	4860
agagcttggc	ggcgaatggg	ctgaccgctt	cctcgtgctt	tacggtatcg	ccgctcccga	4920
ttcgcagcgc	atcgctttct	atcgctttct	tgacgagttc	ttctgagcgg	gactctgggg	4980
ttcgaaatga	ccgaccaagc	gacgcccac	ctgccatcac	gatggccgca	ataaaatata	5040
tttattttca	ttacatctgt	gtgttggttt	tttgtgtgaa	tcgatagcga	taaggatccg	5100
cgtatggtgc	actctcagta	caatctgctc	tgatgccgca	tagttaagcc	agccccgaca	5160
cccgccaaaca	cccgtgacg	cgcctgacg	ggcttgtctg	ctcccggcat	ccgcttacag	5220
acaagctgtg	accgtctccg	ggagctgcat	gtgtcagagg	ttttcacctg	catcacccga	5280
acgcgcgaga	cgaaggggcc	tcgtgatacg	cctattttta	taggttaatg	tcatgataat	5340
aatgggtttct	tagacgtcag	gtggcacttt	tcggggaaat	gtgcgcggaa	cccctatttg	5400
tttatttttc	taaatacatt	caaatatgta	tccgctcatg	agacaataac	cctgataaat	5460
gcttcaataa	tattgaaaaa	ggaagagtat	gagtattcaa	catttccgtg	tcgcccttat	5520
tccctttttt	gcggcatttt	gccttccctgt	ttttgtctac	ccagaaacgc	tgggtgaaagt	5580

aaaagatgct	gaagatcagt	tgggtgcacg	agtgggttac	atcgaactgg	atctcaacag	5640
cggtgaagatc	cttgagagtt	ttcgccccga	agaacgtttt	ccaatgatga	gcacttttaa	5700
agttctgcta	tgtggcgcg	tattatcccc	tattgacgcc	gggcaagagc	aactcggtcg	5760
ccgcatacac	tattctcaga	atgacttgg	tgagtactca	ccagtcacag	aaaagcatct	5820
tacggatggc	atgacagtaa	gagaattatg	cagtgtctgc	ataaccatga	gtgataaac	5880
tgcggccaac	ttactttctga	caacgatcgg	aggaccgaag	gagctaaccg	cttttttgca	5940
caacatgggg	gatcatgtaa	ctcgccctga	tcgttgggaa	ccggagctga	atgaagccat	6000
accaaacgac	gagcgtgaca	ccacgatgcc	tgtagcaatg	gcaacaacgt	tgcgcaaact	6060
attaactggc	gaactactta	ctctagcttc	ccggcaacaa	ttaatagact	ggatggaggc	6120
ggataaagtt	gcaggaccac	ttctgcgctc	ggcccttcgg	gctggctgg	ttattgctga	6180
taaatctgga	gccggtgagc	gtgggtctcg	cggtatcatt	gcagcactgg	ggccagatgg	6240
taagccctcc	cgtatcgtag	ttatctacac	gacggggagt	caggcaacta	tggatgaacg	6300
aaatagacag	atcgctgaga	taggtgcctc	actgattaag	cattggtaac	tgtcagacca	6360
agtttactca	tatatacttt	agattgattt	aaaacttcat	ttttaattta	aaaggatcta	6420
ggtgaagatc	ctttttgata	atctcatgac	caaaatccct	taacgtgagt	tttcgttcca	6480
ctgagcgtca	gaccccgtag	aaaagatcaa	aggatcttct	tgagatcctt	tttttctgcg	6540
cgtaatctgc	tgettgc aaa	caaaaaaacc	accgctacca	gcggtggttt	gtttgccgga	6600
tcaagagcta	ccaactcttt	ttccgaaggt	aactggcttc	agcagagcgc	agataccaaa	6660
tactgtcctt	ctagtgtagc	cgtagttagg	ccaccacttc	aagaactctg	tagcaccgcc	6720
tacatacctc	gctctgctaa	tcctgttacc	agtggctgct	gccagtggcg	ataagtcgtg	6780
tcttaccggg	ttggactcaa	gacgatagtt	accggataag	gcgagcggt	cggtgtgaac	6840
gggggggttcg	tgcacacagc	ccagcttgg	gcgaacgacc	tacaccgaac	tgagatacct	6900
acagcgtgag	cattgagaaa	gcgccacgct	tcccgaaggg	agaaaggcgg	acaggtatcc	6960
ggtaagcggc	agggtcggaa	caggagagcg	cacgaggagg	cttcaggggg	gaaacgcctg	7020
gtatctttat	agtcctgtcg	ggtttcgcca	cctctgactt	gagcgtcgat	ttttgtgatg	7080
ctcgtcaggg	gggcggagcc	tatggaaaaa	cgccagcaac	gcggcctttt	tacggttcct	7140
ggccttttgc	tggccttttg	ctcacatgtt	ctttcctgcg	ttatcccttg	attctgtgga	7200
taaccgtatt	accgcctttg	agtgagctga	taccgtctgc	cgcagccgaa	cgaccgagcg	7260
cagcgagtca	gtgagcgagg	aagcggaaga	gcgcccaata	cgcaaaccgc	ctctccccgc	7320
gcgttggccg	attcattaat	gcagagcttg	caattcgcgc	gtttttcaat	attattgaag	7380
catttatcag	ggttattgtc	tcattgagcg	atacatattt	gaatgtattt	agaaaaataa	7440

acaaataggg gttccgcgca catttccccg aaaagtgcc cctgacgtct aagaaaccat 7500  
tattatcatg acattaacct ataaaaatag gcgtagtacg aggcctttc actcattag 7559

<210> 179

<211> 12288

<212> DNA

<213> pDEST32

<220>

<221> misc\_feature

<222> (2263)..()

<223> n is any nucleotide

<400> 179

gacgaaaggg cctcgtgata cgcctatttt tatagggttaa tgtcatgata ataatggttt 60  
cttaggacgg atcgcttgcc tgtaacttac acgcgcctcg tatcttttaa tgatggaata 120  
at ttg ggaat ttactctgtg tttat ttatt tttatgtttt gtatttg gat tttagaaagt 180  
aaataaagaa ggtagaagag ttacggaatg aagaaaaaaa aataa caaaa ggttttaaaaa 240  
at ttcaaaa aaagcgtact ttacatatat at ttattaga caagaaaagc agattaaata 300  
gatatacatt cgattaacga taagtaaaat gtaaaatcac aggattttcg tgtgtgggtc 360  
tctacacaga caagatgaaa caattcggca ttaatacctg agagcaggaa gagcaagata 420  
aaaggtagta tttgttggcg atccccctag agtcttttac atcttcggaa aacaaaaact 480  
at ttttttctt taatttcttt ttttactttc tatttttaat ttatatattt atattaaaaa 540  
at tttaaatta taattatttt tatagcacgt gatgaaaagg acccagggtg cacttttcgg 600  
ggaaatgtgc gcggaacccc tatttggtta tttttctaaa tacattcaaa tatgtatccg 660  
ctcatgagac aataacctg ataaatgctt caataatctg cagtgcgcag ggcccgtgtc 720  
tcaaaatctc tgatgttaca ttgcacaaga taaaaatata tcatcatgaa caataaaaact 780  
gtctgcttac ataaacagta atacaagggg tgttatgagc catattcaac gggaaacgtc 840  
ttgctggagg ccgcgattaa attccaacat ggatgctgat ttatatgggt ataaatgggc 900  
tcggtagcca accactagaa ctatagctag agtcctgggc gaacaaacga tgctcgcctt 960  
ccagaaaacc gaggatgcga accacttcat ccggggtcag caccaccggc aagcgcgcgc 1020  
acggccgagg tcttccgata tctgaagcc agggcagatc cgtgcacagc accttgccgt 1080

agaagaacag caaggccgcc aatgcctgac gatgctgga gaccgaaacc ttgcgctcgt 1140  
tcgccagcca ggacagaaat gcctcgactt cgctgctgcc caagggtgcc gggtgacgca 1200  
cacctggaa acggatgaag gcacgaaccc agttgacata agcctgttcg gttcgtaaac 1260  
tgtaatgcaa gtagcgtatg cgctcacgca actgggtccag aaccttgacc gaacgcagcg 1320  
gtggtaacgg cgcagtggcg gttttcatgg cttgttatga ctgttttttt gtacagtcta 1380  
tgccctgggc atccaagcag caagcgcgtt acgccgtggg tcgatgtttg atgttatgga 1440  
gcagcaacga tgttacgcag cagcaacgat gttacgcagc agggcagtcg ccctaaaaca 1500  
aagttagggtg gctcaagtat gggcatcatt cgcacatgta ggctcggccc tgaccaagtc 1560  
aaatccatgc gggctgctct tgatcttttc ggtcgtgagt tcggagacgt agccacctac 1620  
tccaacatc agccggactc cgattacctc gggaacttgc tccgtagtaa gacattcatc 1680  
gcgcttgctg ccttcgacca agaagcgggt gttggcgctc tcgcggtta cgttctgccc 1740  
aggtttgagc agccgcgtag tgagatctat atctatgatc tcgcagtctc cggcgagcac 1800  
cggaggcagg gcattgccac cgcgctcatc aatctcctca agcatgaggc caacgcgctt 1860  
ggtgcttatg tgatctacgt gcaagcagat tacggtgacg atcccgcagt ggctctctat 1920  
acaaagttag gcatacggga agaagtgatg cactttgata tcgacccaag taccgccacc 1980  
taacaattcg ttcaagccga gatcggttc cggcctaata aggttgatt gatgttgac 2040  
gagtcggaat cgcagaccga taccaggatc ttgccatcct atggaactgc ctcggtgagt 2100  
tttctccttc attacagaaa cggctttttc aaaaatatgg tattgataat cctgatatga 2160  
ataaattgca gtttcatttg atgctcgatg agtttttcta atcagaattg gtttaattggt 2220  
tgtaacactg gcagagcatt acgctgactt gacgggacgg cgnatgacc aaaatccctt 2280  
aacgtgagtt ttcgttcac tgagcgtcag accccgtaga aaagatcaaa ggatcttctt 2340  
gagatccttt ttttctgcgc gtaatctgct gcttgcaaac aaaaaaacca ccgctaccag 2400  
cggtggtttg tttgccggat caagagctac caactctttt tccgaaggta actggcttca 2460  
gcagagcgca gataccaaat actgtccttc tagtgtagcc gtagttaggc caccacttca 2520  
agaactctgt agcaccgcct acatacctcg ctctgctaata cctgttacca gtggctgctg 2580  
ccagtggcga taagtcgtgt cttaccgggt tggactcaag acgatagtta ccggataagg 2640  
cgcagcggtc gggctgaacg gggggttcgt gcacacagcc cagcttgag cgaacgacct 2700  
acaccgaact gagataccta cagcgtgagc attgagaaag cgccacgctt cccgaaggga 2760  
gaaaggcgga caggtatccg gtaagcggca gggctcggaac aggagagcgc acgagggagc 2820  
ttccaggggg gaacgcctgg tatctttata gtctgtcgg gtttcgccac ctctgacttg 2880  
agcgtcgatt tttgtgatgc tcgtcagggg ggccgagcct atggaaaaac gccagcaacg 2940

B1



cggccttttt	acggttcctg	gccttttgct	ggccttttgc	tcacatgttc	tttctgcgt	3000
tatccctga	ttctgtggat	aaccgtatta	ccgcctttga	gtgagctgat	accgctcgcc	3060
gcagccgaac	gaccgagcgc	agcgagtcag	tgagcgagga	agcggaagag	cgcccaatac	3120
gcaaaccgcc	tctccccgcg	cgttggccga	ttcattaatg	cagctggcac	gacaggtttc	3180
ccgactggaa	agcggggcagt	gagcgcaacg	caattaatgt	gagttacctc	actcattagg	3240
caccccaggc	tttacacttt	atgcttcggg	ctcctatgtt	gtgtggaatt	gtgagcggat	3300
aacaatttca	cacaggaaac	agctatgacc	atgattacgc	caagctcgga	attaaccctc	3360
actaaagggg	acaaaagctg	gtaccgatcc	cgagctttgc	aaattaaagc	cttcgagcgt	3420
cccaaacct	tctcaagcaa	ggttttcagt	ataatgttac	atgcgtacac	gcgtctgtac	3480
agaaaaaaaa	gaaaaatttg	aaatataaat	aacgttctta	atactaacad	aactataaaa	3540
aaataaatag	ggacctagac	ttcaggttgt	ctaactcctt	ccttttcggg	tagagcggat	3600
gtgggggggag	ggcgtgaatg	taagcgtgac	ataactaatt	acatgatata	gacaaaggaa	3660
aaggggcctg	tttactcaca	ggcttttttc	aagtaggtaa	ttaagtcggt	tctgtctttt	3720
tccttcttca	accacacaaa	ggccatcttg	gtactttttt	tttttttttt	tttttttttt	3780
tttttttttt	tttttttttt	tttttttttt	tttttttttt	tttttttttt	tttttttttt	3840
tttttttttca	tagaaataat	acagaagtag	atgttgaatt	agattaaact	gaagatatata	3900
aatttattgg	aaaatacata	gagctttttg	ttgatgcgct	taagcgatca	attcaacaac	3960
accaccagca	gctctgattt	tttcttcagc	caacttggag	acgaatctag	ctttgacgat	4020
aactggaaca	tttggaattc	tacccttacc	caagatctta	ccgtaaccgg	ctgccaaagt	4080
gtcaataact	ggagcagttt	ccttagaagc	agatttcaag	tattgggtctc	tcttgtcttc	4140
tgggatcaat	gtccacaatt	tgtccaagtt	caagactggc	ttccagaaat	gagcttggtg	4200
cttgtggaag	tatctcatat	caaccttacc	gaaataacct	ggatgggtatt	tatccatgtt	4260
aattctgtgg	tgatgttgac	caccggccat	acctctacca	ccgggggtgct	ttctgtgctt	4320
accgatacga	cctttaccgg	ctgagacgtg	acctctgtgc	tttctagtct	tagtgaatct	4380
ggaaggcatt	cttgattagt	tggatgattg	ttctgggatt	taatgcaaaa	atcacttaag	4440
aaggaaaatc	aacggagaaa	gcaaacgcca	tcttaaatat	acgggataca	gatgaaaggg	4500
tttgaacctc	tctgaaaaat	agcattaaac	aagcgaaaaa	ctgcgaggaa	aattgtttgc	4560
gtctctgcgg	gctattcacg	cgccagagga	aaataggaaa	aataacaggg	cattagaaaa	4620
ataattttga	ttttggtaat	gtgtgggtcc	tgggtgtacg	atgttacatt	ggttacagta	4680
ctcttgtttt	tgtgtgtttt	ttcgatgaat	ctccaaaatg	gttggttagca	catggaagag	4740
tcaccgatgc	taagttatct	ctatgtaagc	tacgtggcgt	gacttttgat	gaagccgcac	4800

aagagataca ggattggcaa ctgcaaataag aatctgggga tccccctcg agatccggga 4860  
tcgaagaaat gatggtaaat gaaataggaa atcaaggagc atgaaggcaa aagacaaata 4920  
taaggggtcg acgaaaaata aagtgaaaag tggtgatatg atgtatttgg ctttgcggcg 4980  
ccgaaaaaac gagtttacgc aattgcacaa tcatgctgac tctgtggcgg acccgcgctc 5040  
ttgccggccc ggcgataacg ctgggcgtga ggctgtgccc ggcggagttt tttgcgcctg 5100  
cattttccaa ggtttacctt gcgctaaggg gcgagattgg agaagcaata agaatgccgg 5160  
ttgggggttg gatgatgacg accacgacaa ctggtgtcat tatttaagtt gccgaaagaa 5220  
cctgagtgca tttgcaacat gagtatacta gaagaatgag ccaagacttg cgagacgcga 5280  
gtttgcccgt ggtgcgaaca atagagcgac catgaccttg aaggtgagac gcgcataacc 5340  
gctagagtac tttgaagagg aaacagcaat aggggttgcta ccagtataaa tagacaggta 5400  
catacaacac tggaaatggg tgtctgtttg agtacgcttt caattcattt ggggtgtgcac 5460  
tttattatgt tacaatatgg aagggaactt tacacttctc ctatgcacat atattaatta 5520  
aagtccaatg ctagtagaga aggggggtaa caccctccg cgctcttttc cgattttttt 5580  
ctaaaccgtg gaatatttcg gatatccttt tgttgtttcc ggggtgtacaa tatggacttc 5640  
ctcttttctg gcaaccaaac ccatacatcg ggattcctat aataccttcg ttggtctccc 5700  
taacatgtag gtggcgagg ggagatatac aatagaacag ataccagaca agacataatg 5760  
ggctaaacaa gactacacca attacactgc ctcattgatg gtggtacata acgaactaat 5820  
actgtagccc tagacttgat agccatcatc atatcgaagt ttcactacc tttttccatt 5880  
tgccatctat tgaagtaata ataggcgcat gcaacttctt ttcttttttt ttcttttctc 5940  
tctccccgt tgttgtctca ccataccgc aatgacaaaa aaaatgatgg aagacactaa 6000  
aggaaaaaat taacgacaaa gacagcacca acagatgtcg ttgttccaga gctgatgagg 6060  
ggtatcttcg aacacacgaa actttttcct tccttcattc acgcacacta ctctctaattg 6120  
agcaacggta tacggccttc cttccagtta cttgaatttg aaataaaaaa agtttgccgc 6180  
tttgctatca agtataaata gacctgcaat tattaatctt ttgtttcttc gtcattgttc 6240  
tcgttccctt tcttccttgt ttctttttct gcacaatatt tcaagctata ccaagcatac 6300  
aatcaactcc aagcttgaag caagcctcct gaaagatgaa gctactgtct tctatcgaac 6360  
aagcatgcga tatttgccga cttaaaaagc tcaagtgtc caaagaaaaa ccgaagtgcg 6420  
ccaagtgtct gaagaacaac tgggagtgct gctactctcc caaaaccaa aggtctccgc 6480  
tgactagggc acatctgaca gaagtggaat caaggctaga aagactggaa cagctatttc 6540  
tactgatttt tctcgagaa gaccttgaca tgattttgaa aatggattct ttacaggata 6600  
taaaagcatt gttaacagga ttatttgtac aagataatgt gaataaagat gccgtcacag 6660

B1

atagattggc	ttcagtggag	actgatatgc	ctctaacatt	gagacagcat	agaataagtg	6720
cgacatcatc	atcgggaagag	agtagtaaca	aagggtcaaag	acagttgact	gtatcgtcga	6780
ggtcgaatca	aacaagtttg	tacaaaaaag	ctgaacgaga	aacgtaaaat	gatataaata	6840
tcaatatatt	aaattagatt	ttgcataaaa	aacagactac	ataatactgt	aaaacacaac	6900
atatccagtc	actatggcgg	ccgctaagtt	ggcagcatca	cccgacgcac	tttgcgccga	6960
ataaatacct	gtgacggaag	atcacttcgc	agaataaata	aatcctgggtg	tccttgttga	7020
taccgggaag	ccctgggcca	acttttggcg	aaaatgagac	gttgatcggc	acgtaagagg	7080
ttccaacttt	caccataatg	aaataagatc	actaccgggc	gtattttttg	agttatcgag	7140
attttcagga	gctaaggaag	ctaaaatgga	gaaaaaaatc	actggatata	ccaccgttga	7200
tatatcccaa	tggcatcgta	aagaacattt	tgaggcatth	cagtcagttg	ctcaatgtac	7260
ctataaccag	accgttcagc	tggatattac	ggccttttta	aagaccgtaa	agaaaaataa	7320
gcacaagttt	tatccggcct	ttattcacat	tcttgcccgc	ctgatgaatg	ctcatccgga	7380
attccgtatg	gcaatgaaag	acggtgagct	ggatgatatg	gatagtgttc	acccttgtta	7440
caccgttttc	catgagcaaa	ctgaaacgth	ttcatcgctc	tggagtgaat	accacgacga	7500
tttccggcag	tttctacaca	tatatctgca	agatgtggcg	tggtacgggtg	aaaacctggc	7560
ctatttccct	aaagggttta	ttgagaatat	gtttttcgth	tcagccaatc	cctgggtgag	7620
tttcaccagt	tttgatttaa	acgtggccaa	tatggacaac	ttcttcgccc	ccgttttcac	7680
catgggcaaa	tattatacgc	aaggcgacaa	ggatgctgatg	ccgctggcga	ttcaggttca	7740
tcatgccgth	tgtgatggct	tccatgtcgg	cagaatgctt	aatgaattac	aacagtactg	7800
cgatgagtgg	cagggcgggg	cgtaatctag	aggatccggc	ttactaaaag	ccagataaca	7860
gtatgcgtat	ttgcgcgctg	atthtttgcg	tataagaata	tatactgata	tgtatacccg	7920
aagtatgtca	aaaagaggth	tgctatgaag	cagcgtatta	cagtgcagct	tgacagcgac	7980
agctatcagt	tgctcaaggc	atatatgatg	tcaatatctc	cggctctggta	agcacaacca	8040
tgcagaatga	agcccgtcgt	ctgcgtgccg	aacgctggaa	agcggaaaaat	caggaaggga	8100
tggctgaggt	cgcccggtth	attgaaatga	acggctctth	tgctgacgag	aacagggact	8160
ggtgaaatgc	agtttaaggth	ttacacctat	aaaagagaga	gccgttatcg	tctgtttgtg	8220
gatgtacaga	gtgatattat	tgacacgccc	gggcgacgga	tggatgatccc	cctggccagt	8280
gcacgtctgc	tgtcagataa	agctctcccg	gaactttacc	cgggtggtgca	tatcggggat	8340
gaaagctggc	gcatgatgac	caccgatatg	gccagtgtgc	cggctctccgt	tatcggggaa	8400
gaagtggctg	atctcagcca	ccgcgaaaaat	gacatcaaaa	acgccattaa	cctgatgttc	8460
tggggaatat	aaatgtcagg	ctcccttata	cacagccagt	ctgcaggctc	accatagtga	8520

ctggatatgt	tgtgttttac	agtattatgt	agtctgtttt	ttatgcaaaa	tctaatttaa	8580
tatattgata	tttatatcat	tttacgtttc	tcgttcagct	ttcttgtaca	aagtggtttg	8640
atggccgcta	agtaagtaag	acgtcgagct	ctaagtaagt	aacggccgcc	accgcggtgg	8700
agcttttgac	ttcttcgcca	gaggtttggt	caagtctcca	atcaagggtg	tcggcttgtc	8760
taccttgcca	gaaatttacg	aaaagatgga	aaaggggtcaa	atcgttggta	gatacgttgt	8820
tgacacttct	aaataagcga	atttcttatg	atttatgatt	tttattatta	aataagttat	8880
aaaaaaaaata	agtgtataca	aattttaaag	tgactcttag	gttttaaaac	gaaaattctt	8940
gttcttgagt	aactctttcc	tgtagggtcag	gttgctttct	caggatatagc	atgagggtgc	9000
tcttattgac	cacacctcta	ccggcatgcc	gagcaaatgc	ctgcaaateg	ctccccatct	9060
cacccaattg	tagatatgct	aactccagca	atgagttgat	gaatctcggt	gtgtatttta	9120
tgtcttcaga	ggacaatacc	tgttgtaatc	gttcttcac	acggatccca	attcgcccta	9180
tagtgagtcg	tattacaatt	cactggccgt	cgttttacaa	cgtcgtgact	gggaaaaccc	9240
tggcgttacc	caacttaatc	gccttgtagc	acatccccct	ttcgccagct	ggcgtaatag	9300
cgaagaggcc	cgcaccgatc	gcccttccca	acagttgcgc	agcctgaatg	gcgaatggac	9360
gcgccttgta	gcggcgcatc	aagcgcggtg	ggtgtggtgg	ttacgcgcag	cgtgaccgct	9420
acacttgcca	gcgccttagc	gcccgctcct	ttcgctttct	tcccttcctt	tctcgccacg	9480
ttcgccgggt	ttccccgtca	agctctaaat	cgggggctcc	ctttaggggt	ccgatttagt	9540
gctttacggc	acctcgaccc	caaaaaactt	gattaggggtg	atgggttcacg	tagtggggcca	9600
tcgccttgat	agacgggttt	tcgccctttg	acgttgaggt	ccacgttctt	taatagtggg	9660
ctcttggtcc	aaactggaac	aacactcaac	cctatctcgg	tctattcttt	tgatttataa	9720
gggattttgc	cgatttcggc	ctattgggtta	aaaaatgagc	tgatttaaca	aaaatttaac	9780
gcgaatttta	acaaaatatt	aacgtttaca	atttcctgat	gcggtatttt	ctccttacgc	9840
atctgtgcgg	tatttcacac	cgcataatga	ccggtcgagg	agaacttcta	gtatatccac	9900
atacctaata	ttattgcctt	attaaaaatg	gaatcggaac	aattacatca	aaatccacat	9960
tctcttcaaa	atcaattgtc	ctgtacttcc	ttgttcatgt	gtgttcaaaa	acgttatatt	10020
tataggataa	ttatactcta	tttctcaaca	agtaattggt	tgtttgcccg	agcgggtctaa	10080
ggcgctgat	tcaagaaata	tcttgaccgc	agttaactgt	gggaatactc	aggtatcgta	10140
agatgcaaga	gttcgaatct	cttagcaacc	attatttttt	tctcaacat	aacgagaaca	10200
cacagggggc	ctatcgca	gaatcaaatt	cgatgactgg	aaattttttg	ttaatttcag	10260
aggtcgcctg	acgcatatac	ctttttcaac	tgaaaaattg	ggagaaaaag	gaaagggtgag	10320
aggccggaac	cggctttttc	tatagaatag	agaagcggtc	atgactaaat	gcttgcatca	10380

caatacttga agttgacaat attattttaag gacctattgt tttttccaat aggtgggttag 10440  
caatcgtctt acttttctaac ttttcttacc ttttacattt cagcaatata tatatatatt 10500  
tcaaggatat accatttctaa tgtctgcccc tatgtctgcc cctaagaaga tcgtcgtttt 10560  
gccaggtgac cacgttggtc aagaaatcac agccgaagcc attaagggtc ttaaagctat 10620  
ttctgatgtt cgttccaatg tcaagttcga tttcgaaaat catttaattg gtgggtgctgc 10680  
tatcgatgct acagggtgtcc cacttccaga tgaggcgctg gaagcctcca agaagggtga 10740  
tgccgttttg ttaggtgctg tgggtgggtcc taaatggggg accggtagtg ttagacctga 10800  
acaaggttta ctaaaaaatcc gtaaagaact tcaattgtac gccaaactta gaccatgtaa 10860  
ctttgcatcc gactctcttt tagacttatc tccaatcaag ccacaatttg ctaaaggtag 10920  
tgacttcgtt gttgtcagag aattagtggg aggtatttac tttggtaaga gaaaggaaga 10980  
cgatgggtgat ggtgtcgtt gggatagtga acaatacacc gttccagaag tgcaaagaat 11040  
cacaagaatg gccgctttca tggccctaca acatgagcca ccattgccta tttggtcctt 11100  
ggataaagct aatgttttgg cctcttcaag attatggaga aaaactgtgg aggaaaccat 11160  
caagaacgaa ttccctacat tgaaggttca acatcaattg attgattctg ccgccatgat 11220  
cctagttaag aacccaaccc acctaaatgg tattataatc accagcaaca tgtttggtga 11280  
tatcatctcc gatgaagcct ccgttatccc aggttccttg ggtttggtgc catctgcgtc 11340  
cttggcctct ttgccagaca agaacaccgc atttggttg tacgaaccat gccacgggtc 11400  
tgctccagat ttgccaaaga ataaggttga ccctatcgcc actatcttgt ctgctgcaat 11460  
gatgttgaaa ttgtcattga acttgccctga agaaggtaag gccattgaag atgcagttaa 11520  
aaaggttttg gatgcaggta tcagaactgg tgatttaggt ggttccaaca gtaccaccga 11580  
agtcgggtgat gctgtgcgag aagaagttaa gaaaatcctt gcttaaaaag attctctttt 11640  
tttatgatat ttgtacataa actttataaa tgaaattcat aatagaaacg acacgaaatt 11700  
acaaaatgga atatgttcat agggtagacg aaactatata cgcaatctac atacatttat 11760  
caagaaggag aaaaaggagg atagtaaagg aatacaggta agcaaattga tactaatggc 11820  
tcaacgtgat aaggaaaaag aattgcactt taacattaat attgacaagg aggagggcac 11880  
cacacaaaaa gttagggtga acagaaaatc atgaaactac gattcctaatt ttgatattgg 11940  
aggattttct ctaaaaaaaaa aaaaatacaa caaataaaaa aactcaatg acctgaccat 12000  
ttgatggagt ttaagtcaat accttcttga accatttccc ataatgggtga aagttccctc 12060  
aagaatttta ctctgtcaga aacggcctta cgacgtagtc gatatgggtc actctcagta 12120  
caatctgctc tgatgccgca tagttaagcc agccccgaca cccgccaaca cccgctgacg 12180  
cgccctgacg ggcttgtctg ctcccggcat ccgcttacag acaagctgtg accgtctccg 12240

B1

ggagctgcat gtgtcagagg ttttcaccgt catcaccgaa acgcgcga 12288

<210> 180

<211> 8815

<212> DNA

<213> pDEST33

<400> 180

gccttacgca tctgtgcggt atttcacacc gcaggcaagt gcacaaacaa tacttaaata	60
aatactactc agtaataacc tatttcttag catttttgac gaaatttgct attttgtag	120
agtcttttac accatttgct tccacacctc cgcttacatc aacaccaata acgccattta	180
atctaagcgc atcaccaaca ttttctggcg tcagtccacc agctaacata aaatgtaagc	240
tttcggggct ctcttgctt ccaacctcagt cagaaatcga gttccaatcc aaaagttcac	300
ctgtcccacc tgcttctgaa tcaaacaagg gaataaacga atgaggtttc tgtgaagctg	360
cactgagtag tatgttgag tcttttggaa atacgagtct ttttaataact ggcaaaccga	420
ggaactcttg gtattcttgc cagactcat ctccatgcag ttggacgata tcaatgccgt	480
aatcattgac cagagccaaa acatcctcct taggttgatt acgaaacacg ccaaccaagt	540
atttcggagt gcctgaacta tttttatatg cttttacaag acttgaaatt ttccttgcaa	600
taaccggggtc aattgttctc tttctattgg gcacacatat aataccacgc aagtcagcat	660
cggaatctag agcacattct gcggcctctg tgctctgcaa gccgcaaact ttcaccaatg	720
gaccagaact acctgtgaaa ttaataacag acatactcca agctgccttt gtgtgcttaa	780
tcacgtatac tcacgtgctc aatagtcacc aatgccctcc ctcttggccc tctccttttc	840
ttttttcgac cgaattaatt cttaatcggc aaaaaaagaa aagctccgga tcaagattgt	900
acgtaagggtg acaagctatt tttcaataaa gaatatcttc cactactgcc atctggcgctc	960
ataactgcaa agtacacata tattacgatg ctgtctatta aatgcttcct atattatata	1020
tatagtaatg tcgtttatgg tgcactctca gtacaatctg ctctgatgcc gcatagttaa	1080
gccagccccg acacccgcca acacccgctg acgcgccctg acgggcttgt ctgtccccgg	1140
catccgctta cagacaagct gtgaccgtct cggggagctg catgtgtcag aggttttcac	1200
cgtcatcacc gaaacgcgcg agacgaaagg gcctcgtgat acgcctattt ttataggtta	1260
atgtcatgat aataatggtt tcttaggacg gatcgcttgc ctgtaactta cacgcgcctc	1320
gtatctttta atgatggaat aatttgggaa tttactctgt gtttatttat ttttatgttt	1380
tgtattttgga ttttagaaaag taaataaaga aggtagaaga gttacggaat gaagaaaaaa	1440

aaataaacia	aggtttaaaa	aatttcaaca	aaaagcgtac	tttacaata	tatttattag	1500
acaagaaaag	cagattaaat	agataacat	tcgattaacg	ataagtaaaa	tgtaaaatca	1560
caggattttc	gtgtgtgggc	ttctacacag	acaagatgaa	acaattcggc	attaatacct	1620
gagagcagga	agagcaagat	aaaaggtagt	atttgttggc	gatcccccta	gagtctttta	1680
catcttcgga	aaacaaaaac	tattttttct	ttaatttctt	tttttacttt	ctatttttta	1740
tttatatatt	tatatataaa	aatttaaatt	ataattattt	ttatagcacg	tgatgaaaag	1800
gaccaggtg	gcacttttcg	gggaaatgtg	cgcggaaccc	ctatttgttt	atttttctaa	1860
atacattcaa	atatgtatcc	gctcatgaga	caataaccct	gataaatgct	tcaataatat	1920
tgaaaaagga	agagtatgag	tattcaacat	ttccgtgtcg	cccttattcc	cttttttgcg	1980
gcattttgcc	ttcctgtttt	tgctcaccca	gaaacgctgg	tgaaagtaaa	agatgctgaa	2040
gatcagttgg	gtgcacgagt	gggttacatc	gaactggatc	tcaacagcgg	taagatcctt	2100
gagagttttc	gccccgaaga	acgtttttcca	atgatgagca	cttttaaagt	tctgctatgt	2160
ggcgcggtat	tatcccgat	tgacgccggg	caagagcaac	tcggtcgccg	catacactat	2220
tctcagaatg	acttggttga	gtactcacca	gtcacagaaa	agcatcttac	ggatggcatg	2280
acagtaagag	aattatgcag	tgctgccata	accatgagtg	ataacactgc	ggccaactta	2340
cttctgacaa	cgatcggagg	accgaaggag	ctaaccgctt	tttttcacaa	catgggggat	2400
catgtaactc	gccttgatcg	ttgggaaccg	gagctgaatg	aagccatacc	aaacgacgag	2460
cgtgacacca	cgatgcctgt	agcaatggca	acaacgttgc	gcaaactatt	aactggcgaa	2520
ctacttactc	tagcttcccg	gcaacaatta	atagactgga	tggaggcgga	taaagttgca	2580
ggaccacttc	tgcgctcggc	ccttccggct	ggctggttta	ttgctgataa	atctggagcc	2640
ggtgagcgtg	ggtctcgcg	tatcattgca	gcactggggc	cagatggtaa	gccctcccg	2700
atcgtagtta	tctacacgac	gggcagtcag	gcaactatgg	atgaacgaaa	tagacagatc	2760
gctgagatag	gtgcctcact	gattaagcat	tggttaactgt	cagaccaagt	ttactcatat	2820
atactttaga	ttgattttaa	acttcatttt	taatttaaaa	ggatctaggt	gaagatcctt	2880
tttgataatc	tcatgaccaa	aatcccttaa	cgtgagtttt	cgttccactg	agcgctcagac	2940
cccgtagaaa	agatcaaagg	atcttcttga	gatccttttt	ttctgcgcgt	aatctgctgc	3000
ttgcaaacia	aaaaaccacc	gctaccagcg	gtggtttggt	tgccggatca	agagctacca	3060
actctttttc	cgaaggtaac	tggcttcagc	agagcgcaga	taccaaatac	tgtccttcta	3120
gtgtagccgt	agttaggcca	ccacttcaag	aactctgtag	caccgcctac	atacctcgct	3180
ctgctaatec	tgttaccagt	ggctgctgcc	agtggcgata	agtcgtgtct	taccgggttg	3240
gactcaagac	gatagttacc	ggataaggcg	cagcggtcgg	gctgaacggg	gggttcgtgc	3300

acacagccca	gcttggagcg	aacgacctac	accgaactga	gatacctaca	gcgtgagcat	3360
tgagaaagcg	ccacgcttcc	cgaagggaga	aaggcgagca	ggtatccggt	aagcggcagg	3420
gtcggaaacag	gagagcgcac	gagggagctt	ccagggggga	acgcctggta	tctttatagt	3480
cctgtcgggt	ttcgccacct	ctgacttgag	cgtegatttt	tgtgatgctc	gtcagggggg	3540
ccgagcctat	ggaaaaacgc	cagcaacgcg	gcctttttac	ggttcctggc	cttttgctgg	3600
ccttttgctc	acatgttctt	tcctgcgtta	tcccttgatt	ctgtggataa	ccgtattacc	3660
gcctttgagt	gagctgatac	cgctcgccgc	agccgaacga	ccgagcgcag	cgagtcagtg	3720
agcgaggaag	cgaagagcg	cccaatacgc	aaaccgcctc	tccccgcgcg	ttggccgatt	3780
cattaatgca	gctggcacga	caggtttccc	gactggaaag	cgggcagtga	gcgcaacgca	3840
attaatgtga	gttacctcac	tcattaggca	ccccaggctt	tacactttat	gcttcgggct	3900
cctatgttgt	gtggaattgt	gagcggataa	caatttcaca	caggaaacag	ctatgaccat	3960
gattacgcca	agctcggaat	taaccctcac	taaagggaac	aaaagctggg	taccgggccc	4020
cccctcgaga	tccgggatcg	aagaaatgat	ggtaaatgaa	ataggaaatc	aaggagcatg	4080
aaggcaaaag	acaaatataa	gggtcgaacg	aaaaataaag	tgaaaagtgt	tgatatgatg	4140
tatttggtct	tgcggcgcgc	aaaaaacgag	tttacgcaat	tgacacatca	tgctgactct	4200
gtggcgagacc	cgcgctcttg	ccggcccggc	gataacgctg	ggcgtgaggc	tgtgcccggc	4260
ggagtttttt	gcgcctgcat	tttccaaggt	ttaccctgcg	ctaaggggcg	agattggaga	4320
agcaataaga	atgccggttg	gggttgcgat	gatgacgacc	acgacaactg	gtgtcattat	4380
ttaagttgcc	gaaagaacct	gagtgcattt	gcaacatgag	tatactagaa	gaatgagcca	4440
agacttgcca	gacgcgagtt	tgccggtggg	gcgaacaata	gagcgaccat	gaccttgaag	4500
gtgagacgcg	cataaccgct	agagtacttt	gaagaggaaa	cagcaatagg	gttgctacca	4560
gtataaatag	acaggtacat	acaacactgg	aatgggttgt	ctgtttgagt	acgctttcaa	4620
ttcatttggg	tgtgcacttt	attatgttac	aatatggaag	ggaactttac	acttctccta	4680
tgcacatata	ttaattaaag	tccaatgcta	gtagagaagg	ggggtaacac	ccctccgcg	4740
tcttttccga	tttttttcta	aaccgtggaa	tatttcggat	atccttttgt	tgtttccggg	4800
tgtacaatat	ggacttcctc	ttttctggca	accaaaccga	tacatcgagg	ttcctataat	4860
accttcgttg	gtctccctaa	catgtaggtg	gcggagggga	gatatacaat	agaacagata	4920
ccagacaaga	cataatgggc	taaacaagac	tacaccaatt	acactgcctc	attgatgggtg	4980
gtacataacg	aactaatact	gtagccctag	acttgatagc	catcatcata	tcgaagtttc	5040
actacccttt	ttccatttgc	catctattga	agtaataata	ggcgcatgca	acttcttttc	5100
tttttttttc	ttttctctct	ccccggttgt	tgtctcacca	tatccgcaat	gacaaaaaaa	5160



atgatggaag acactaaagg aaaaaattaa cgacaaagac agcaccaaca gatgtcgttg 5220  
ttccagagct gatgaggggt atcttcgaac acacgaaact ttttccttcc ttcattcacg 5280  
cacactactc tctaattgagc aacgggtatac ggccttcctt ccagttactt gaatttgaaa 5340  
taaaaaaagt ttgccgcttt gctatcaagt ataaatagac ctgcaattat taatcttttg 5400  
tttcctcgtc attgttctcg ttccttttct tccttgtttc tttttctgca caatatttca 5460  
agctatacca agcatacaat caactccaag cttatgcccc agaagaagcg gaaggctctcg 5520  
agcggcgcca attttaatca aagtgggaat attgctgata gctcattgtc cttcactttc 5580  
actaacagta gcaacgggtc gaacctcata acaactcaaa caaattctca agcgctttca 5640  
caaccaattg cctcctctaa cgttcatgat aacttcatga ataataaat caccgctagt 5700  
aaaattgatg atggtaataa ttcaaaacca ctgtcacctg gttggacgga ccaaactgcg 5760  
tataacgcgt ttggaatcac tacagggatg ttttaatacca ctacaatgga tgatgtatat 5820  
aactatctat tcgatgatga agatacccca ccaaacccaa aaaaagaggg tgggtcgaat 5880  
caaacaagtt tgtacaaaaa agctgaacga gaaacgtaaa atgatataaa tatcaatata 5940  
ttaaattaga ttttgcataa aaaacagact acataatact gtaaaacaca acatatccag 6000  
tcactatggc ggccgctaag ttggcagcat cacccgacgc actttgcgcc gaataaatac 6060  
ctgtgacgga agatcacttc gcagaataaa taaatcctgg tgcctctgtt gataccggga 6120  
agccctgggc caacttttgg cgaaaatgag acgttgatcg gcacgtaaga ggttccaact 6180  
ttcaccataa tgaaataaga tcactaccgg gcgtattttt tgagttatcg agatttttcag 6240  
gagctaagga agctaaaatg gagaaaaaaa tcactggata taccaccgtt gatatatccc 6300  
aatggcatcg taaagaacat tttgagggcat ttcagtcagt tgctcaatgt acctataacc 6360  
agaccgttca gctggatatt acggcctttt taaagaccgt aaagaaaaat aagcacaagt 6420  
tttatccggc ctttattcac attccttgcce gcctgatgaa tgctcatccg gaattccgta 6480  
tggcaatgaa agacggtgag ctggtgatat gggatagtggt tcacccttgt tacaccgttt 6540  
tccatgagca aactgaaacg ttttcatcgc tctggagtga ataccacgac gatttccggc 6600  
agtttctaca catatatctg caagatgtgg cgtgttacgg tgaaaacctg gcctatttcc 6660  
ctaaaggggt tattgagaat atgtttttcg tctcagccaa tccctgggtg agtttcacca 6720  
gttttgattt aaacgtggcc aatatggaca acttcttcgc ccccgttttc accatgggca 6780  
aatattatac gcaaggcgac aagggtctga tgccgctggc gattcaggtt catcatgccg 6840  
tctgtgatgg cttccatgtc ggcagaatgc ttaatgaatt acaacagtac tgcgatgagt 6900  
ggcagggcgg ggcgtaatct agaggatccg gcttactaaa agccagataa cagtatgcgt 6960  
atltgcgcgc tgatttttgc ggtataagaa tatatactga tatgtatacc cgaagtatgt 7020

B1

caaaaagagg	tgtgctatga	agcagcgtat	tacagtgaca	gttgacagcg	acagctatca	7080
gttgctcaag	gcataatga	tgtcaatata	tccgggtctgg	taagcacaac	catgcagaat	7140
gaagcccgtc	gtctgcgtgc	cgaacgctgg	aaagcggaaa	atcaggaagg	gatggctgag	7200
gtcgcccgg	ttattgaaat	gaacggctct	tttgctgacg	agaacaggga	ctgggtgaaat	7260
gcagtttaag	gtttacacct	ataaaagaga	gagccgttat	cgtctgtttg	tggatgtaca	7320
gagtgatatt	attgacacgc	ccgggcgacg	gatgggtgatc	cccctggcca	gtgcacgtct	7380
gctgtcagat	aaagtctccc	gtgaacttta	cccgggtggtg	catatcgggg	atgaaagctg	7440
gcgcgatgatg	accaccgata	tggccagtgt	gccgggtctcc	gttatcgggg	aagaagtggc	7500
tgatctcagc	caccgcgaaa	atgacatcaa	aaacgccatt	aacctgatgt	tctggggaat	7560
ataaatgtca	ggctccgtta	tacacagcca	gtctgcagg	cgaccatagt	gactggatat	7620
gttgtgtttt	acagtattat	gtagtctggt	ttttatgcaa	aatctaattt	aatatattga	7680
tatttatata	attttacgtt	tctcgttcag	ctttcttgta	caaagtgggt	tgatggccgc	7740
taagtaagta	agacgtcgag	ctccctatag	tgagtcgtat	tacactggcc	gtcgttttac	7800
aacgtcgtga	ctgggaaaac	accggtgagc	tctaagtaag	taacggccgc	caccgcgggtg	7860
gagctttgga	cttcttcgcc	agaggtttgg	tcaagtcctcc	aatcaagggt	gtcggcttgt	7920
ctaccttgcc	agaaatttac	gaaaagatgg	aaaaggggtca	aatcgttggt	agatacgttg	7980
ttgacacttc	taaataagcg	aatttcttat	gatttatgat	ttttattatt	aaataagtta	8040
taaaaaaaat	aagtgtatac	aaatttttaa	gtgactctta	ggtttttaaaa	cgaaaattct	8100
tgttcttgag	taactctttc	ctgtaggtca	ggttgctttc	tcaggatatag	catgagggtcg	8160
ctcttattga	ccacacctct	accggcatgc	cgagcaaatg	cctgcaaatc	gtccccatt	8220
tcacccaatt	gtagatatgc	taactccagc	aatgagttga	tgaatctcgg	tgtgtatttt	8280
atgtcctcag	aggacaatac	ctgttgtaat	cgttcttcca	cacggatccg	catcaggcga	8340
aattgtaaac	gttaatat	tgttaaaatt	cgcgttaa	atttgttaaa	tcagctcatt	8400
ttttaaccaa	taggccgaaa	tcggcaaaat	cccttataaa	tcaaaagaat	agaccgagat	8460
aggggtgagt	gttggtccag	tttggaacaa	gagtcacta	ttaaagaacg	tggactccaa	8520
cgtcaaaggg	cgaaaaaccg	tctatcaggg	cgatggccca	ctacgtgaac	catcacccta	8580
atcaagtttt	ttggggtcga	ggtgccgtaa	agcactaaat	cggaacccta	aaggagagccc	8640
ccgatttaga	gcttgacggg	gaaagccggc	gaacgtggcg	agaaaggaag	ggaagaaagc	8700
gaaaggagcg	ggcgctaggg	cgctggcaag	tgtagcggtc	acgctgcgcg	taaccaccac	8760
acccgcgcg	cttaatgcgc	cgctacaggg	cgcgtcccat	tcgccattca	ctgca	8815

<211> 7114

<212> DNA

<213> pDEST34

<400> 181

atcgagatct cgatcccgcg aaattaatac gactcactat agggagacca caacggtttc 60  
cctctagatc acaagtttgt acaaaaaagc tgaacgagaa acgtaaaatg atataaatat 120  
caatatatta aattagattt tgcataaaaa acagactaca taatactgta aaacacaaca 180  
tatccagtca ctatggcggc cgcattaggc accccaggct ttacacttta tgcttcgggc 240  
tcgtataatg tgtggatttt gagttaggat cgggcgagat tttcaggagc taaggaagct 300  
aaaatggaga aaaaaatcac tggatatacc accgttgata tatccaatg gcatcgtaaa 360  
gaacattttg aggcatttca gtcagttgct caatgtacct ataaccagac cgttcagctg 420  
gatattacgg cctttttaaa gaccgtaaag aaaaataagc acaagtttta tccggccttt 480  
attcacattc ttgcccgcct gatgaatgct catccggaat tccgtatggc aatgaaagac 540  
ggtgagctgg tgatatggga tagtgttcac ccttgttaca ccgttttcca tgagcaaact 600  
gaaacgtttt catcgctctg gagtgaatac cacgacgatt tccggcagtt tctacacata 660  
tattcgcaag atgtggcgtg ttacggtgaa aacctggcct atttccctaa agggtttatt 720  
gagaatatgt ttttcgtctc agccaatccc tgggtgagtt tcaccagttt tgattttaaac 780  
gtggccaata tggacaactt cttcgcccc cgtttcacca tgggcaaata ttatacgcaa 840  
ggcgacaagg tgctgatgcc gctggcgatt caggttcatc atgccgtctg tgatggcttc 900  
catgtcggca gaatgcttaa tgaattacaa cagtactgcg atgagtggca gggcggggcg 960  
taaacgcgtg gatccggctt actaaaagcc agataacagt atgcgtattt gcgcgctgat 1020  
ttttgcggta taagaatata tactgatatg tatacccgaa gtatgtcaaa aagaggtgtg 1080  
ctatgaagca gcgtattaca gtgacagttg acagcgacag ctatcagttg ctcaaggcat 1140  
atatgatgtc aatatctccg gtctggtaag cacaaccatg cagaatgaag cccgtcgtct 1200  
gcgtgccgaa cgctggaaaag cggaaaatca ggaagggatg gctgaggtcg cccggtttat 1260  
tgaaatgaac ggctcttttg ctgacgagaa cagggactgg tgaaatgcag tttaaggttt 1320  
acacctataa aagagagagc cgttatcgtc tgtttgtgga tgtacagagt gatattattg 1380  
acacgccccg gcgacggatg gtgatcccc tggccagtgc acgtctgctg tcagataaag 1440  
tctcccgtga actttaccg gtggtgcata tcggggatga aagctggcgc atgatgacca 1500  
ccgatatggc cagtgtgccg gtctccgtta tcggggaaga agtggctgat ctcagccacc 1560  
gcgaaaatga catcaaaaac gccattaacc tgatgttctg gggaatataa atgtcaggct 1620

B1

cccttataca	cagccagtct	gcaggctcgac	catagtgact	ggatatgttg	tgttttacag	1680
tattatgtag	tctgtttttt	atgcaaaatc	taatttaata	tattgatatt	tatatcattt	1740
tacgtttctc	gttcagcttt	cttgtacaaa	gtggtgatta	tgccccctat	actaggttat	1800
tggaaaatta	agggccttgt	gcaaccctact	cgacttcttt	tggaatatct	tgaagaaaaa	1860
tatgaagagc	atgtgtatga	gcgcgatgaa	ggtgataaat	ggcgaaacaa	aaagtttgaa	1920
ttgggtttgg	agtttcccaa	tcttccttat	tatattgatg	gtgatgttaa	attaacacag	1980
tctatggcca	tcatacgtta	tatagctgac	aagcacaaca	tgttgggtgg	ttgtccaaaa	2040
gagcgtgcag	agatttcaat	gcttgaagga	gcggttttgg	atattagata	cgggtgtttcg	2100
agaattgcat	atagtaaaga	ctttgaaact	ctcaaagttg	attttcttag	caagctacct	2160
gaaatgctga	aatgtttcga	agatcgttta	tgtcataaaa	catatttaaa	tggtgatcat	2220
gtaaccctac	ctgacttcat	gttgtatgac	gctcttgatg	ttgttttata	catggaccca	2280
atgtgcctgg	atgcgttccc	aaaattagtt	tgtttttaaaa	aacgtattga	agctatccca	2340
caaattgata	agtacttgaa	atccagcaag	tatatagcat	ggcctttgca	gggctggcaa	2400
gccacgtttg	gtgggtggcg	ccatcctcca	aaatcggatc	tggttccgcg	tccatgggga	2460
tccggctgct	aacaaagccc	gaaaggaagc	tgagttggct	gctgccaccg	ctgagcgctt	2520
cccgataagg	gagcaggcca	gtaaaagcat	tacccggtgt	ggggttcccc	agcggccaaa	2580
gggagcagac	tctaaatctg	ccgtcatcga	cttcgaaggt	tcgaatcctt	ccccaccac	2640
catcactttc	aaaagtgaat	tcgctgagca	ataactagca	taacccttg	gggcctctaa	2700
acgggtcttg	aggggttttt	tgctgaaagg	aggaactata	tccggatatc	cacaggacgg	2760
gtgtggtcgc	catgatcgcg	tagtcgatag	tggctccaag	tagcgaagcg	agcaggactg	2820
ggcgggcgcc	aaagcggtcg	gacagtgtct	cgagaacggg	tgcgcataga	aattgcatca	2880
acgcatatag	cgctagcagc	acgccatagt	gactggcgat	gctgtcggaa	tggacgatat	2940
cccgaagag	gcccggcagt	accggcataa	ccaagcctat	gcctacagca	tccaggtgta	3000
cgggtgccgag	gatgacgatg	agcgcattgt	tagatttcat	acacggtgcc	tgactgcgtt	3060
agcaatttaa	ctgtgataaa	ctaccgcatt	aaagcttatc	gatgataagc	tgtcaaacat	3120
gagaattctt	gaagacgaaa	gggcctcgtg	atacgccctat	ttttataggt	taatgtcatg	3180
ataataatgg	tttcttagac	gtcaggtggc	acttttcggg	gaaatgtgcg	cggaaccctt	3240
atgtgtttat	ttttctaaat	acattcaaat	atgtatccgc	tcatgagaca	ataaccctga	3300
taaatgcttc	aataatattg	aaaaaggaag	agtatgagta	ttcaacattt	ccgtgtcgcc	3360
cttattccct	tttttgcggc	attttgctt	cctgtttttg	ctcaccagca	aacgctgggtg	3420
aaagtaaaag	atgctgaaga	tcagttgggt	gcacgagtgg	gttacatcga	actggatctc	3480

aacagecggt	agatccttga	gagttttcgc	cccgaagaac	gttttccaat	gatgagcact	3540
tttaaagttc	tgctatgtgg	cgcggtatta	tcccgtgttg	acgccgggca	agagcaactc	3600
ggtcgcccga	tacactattc	tcagaatgac	ttggttgagt	actcaccagt	cacagaaaag	3660
catcttacgg	atggcatgac	agtaagagaa	ttatgcagtg	ctgccataac	catgagtgat	3720
aacactgcgg	ccaacttact	tctgacaacg	atcggaggac	cgaaggagct	aaccgctttt	3780
ttgcacaaca	tgggggatca	tgtaactcgc	cttgatcggt	gggaaccgga	gctgaatgaa	3840
gccataccaa	acgacgagcg	tgacaccacg	atgcctgcag	caatggcaac	aacgttgccg	3900
aaactattaa	ctggcgaaact	acttactcta	gcttcccggc	aacaattaat	agactgggatg	3960
gagggcgata	aagttgcagg	accacttctg	cgctcggccc	ttccggctgg	ctggttttatt	4020
gctgataaat	ctggagccgg	tgagcgtggg	tctcgcggta	tcattgcagc	actggggcca	4080
gatggtaagc	cctcccgtat	cgtagttatc	tacacgacgg	ggagtcaggc	aactatggat	4140
gaacgaaata	gacagatcgc	tgagataggt	gcctcactga	ttaagcattg	gtaactgtca	4200
gaccaagttt	actcatatat	acttttagatt	gatttaaaac	ttcattttta	atttaaaagg	4260
atctaggtga	agatcctttt	tgataatctc	atgacaaaaa	tcccttaacg	tgagttttcg	4320
ttccactgag	cgtcagaccc	cgtagaaaag	atcaaaggat	cttcttgaga	tccttttttt	4380
ctgcgcgtaa	tctgctgctt	gcaaacaaaa	aaaccaccgc	taccagcggg	ggtttggttg	4440
ccggatcaag	agctaccaac	tctttttccg	aaggtaactg	gcttcagcag	agcgcagata	4500
ccaaatactg	tccttctagt	gtagccgtag	ttagggccacc	acttcaagaa	ctctgtagca	4560
ccgcctacat	acctcgctct	gctaatacctg	ttaccagtgg	ctgctgccag	tgccgataag	4620
tcgtgtctta	ccgggttggg	ctcaagacga	tagttaccgg	ataaggcgca	gcggtcgggc	4680
tgaacggggg	gttcgtgcac	acagcccagc	ttggagcgaa	cgacctacac	cgaactgaga	4740
tacctacagc	gtgagctatg	agaaagcgcc	acgcttcccg	aaggagagaaa	ggcggacagg	4800
tatccggtaa	gcggcagggg	cggaacagga	gagcgcacga	gggagcttcc	agggggaaac	4860
gcctgggtatc	tttatagttc	tgtcgggttt	cgccacctct	gacttgagcg	tcgatttttg	4920
tgatgctcgt	cagggggggc	gagcctatgg	aaaaacgcca	gcaacgcggc	ctttttacgg	4980
ttcctggcct	tttgctggcc	ttttgctcac	atgttctttc	ctgcgttata	ccctgattct	5040
gtggataacc	gtattaccgc	ctttgagtga	gctgataccg	ctcgccgcag	ccgaacgacc	5100
gagcgcagcg	agtcagttag	cgaggaagcg	gaagagcgcc	tgatgcggta	ttttctcctt	5160
acgcctctgt	gcgggtatttc	acaccgcata	tatggtgcac	tctcagtaca	atctgctctg	5220
atgccgcata	gttaagccag	tatacactcc	gctatcgcta	cgtgactggg	tcattggctgc	5280
gccccgacac	ccgccaacac	ccgctgacgc	gccctgacgg	gcttgtctgc	ttccggcctc	5340

cgcttacaga	caagctgtga	ccgtctccgg	gagctgcatg	tgtcagaggt	tttcaccgtc	5400
atcaccgaaa	cgcgcgaggc	agctgcggta	aagctcatca	gcgtggtcgt	gaagcgattc	5460
acagatgtct	gcctgttcat	ccgcgtccag	ctcgttgagt	ttctccagaa	gcgttaatgt	5520
ctggcttctg	ataaagcggg	ccatgttaag	ggcggttttt	tcctgtttgg	tactgatgc	5580
ctccgtgtaa	gggggatttc	tgttcatggg	ggtaatgata	ccgatgaaac	gagagaggat	5640
gctcacgata	cgggttactg	atgatgaaca	tgcccgggta	ctggaacgtt	gtgagggtaa	5700
acaactggcg	gtatggatgc	ggcgggacca	gagaaaaatc	actcagggtc	aatgccagcg	5760
cttcgttaat	acagatgtag	gtgttccaca	gggtagccag	cagcatcctg	cgatgcagat	5820
ccggaacata	atgggtgcagg	gcgctgactt	ccgcgtttcc	agactttacg	aaacacggaa	5880
accgaagacc	attcatgttg	ttgctcaggt	cgcagacgtt	ttgcagcagc	agtcgcttca	5940
cgttcgctcg	cgtatcggtg	attcattctg	ctaaccagta	aggcaacccc	gccagcctag	6000
ccgggtcctc	aacgacagga	gcacgatcat	gcgcacccgt	ggccaggacc	caacgctgcc	6060
cgagatgcgc	cgcgtgcggc	tgctggagat	ggcggacgcg	atggatatgt	tctgccaagg	6120
gttggtttgc	gcattcacag	ttctccgcaa	gaattgattg	gctccaattc	ttggagtggg	6180
gaatccgtta	gcgaggtgcc	gccggcttcc	attcaggtcg	aggtggcccc	gctccatgca	6240
ccgcgacgca	acgcggggag	gcagacaagg	tatagggcgg	cgcctacaat	ccatgccaac	6300
ccgttccatg	tgctcgccga	ggcggcataa	atcgccgtga	cgatcagcgg	tccagtgate	6360
gaagttaggc	tggttaagagc	cgcgagcgat	ccttgaagct	gtccctgatg	gtcgtcatct	6420
acctgcctgg	acagcatggc	ctgcaacgcg	ggcatccccg	tgccgcccga	agcgagaaga	6480
atcataatgg	ggaaggccat	ccagcctcgc	gtcgcgaacg	ccagcaagac	gtagcccagc	6540
gcgtcgcccg	ccatgccggc	gataatggcc	tgcttctcgc	cgaaacgttt	ggtggcgggg	6600
ccagtgacga	aggcttgagc	gagggcgtgc	aagattccga	ataccgcaag	cgacaggccg	6660
atcatcgctg	cgctccagcg	aaagcgggtc	tcgccgaaaa	tgaccagag	cgctgccggc	6720
acctgtccta	cgagttgcat	gataaagaag	acagtcataa	gtgcggcgac	gatagtcatg	6780
ccccgcgcc	accggaagga	gctgactggg	ttgaaggctc	tcaagggcat	cggtcgatcg	6840
acgtctctcc	ttatgcgact	cctgcattag	gaagcagccc	agtagtaggt	tgaggccgtt	6900
gagcaccgcc	gccgcaagga	atgggtgcatg	caaggagatg	gcgcccaca	gtccccggc	6960
cacggggcct	gccaccatac	ccacgccgaa	acaagcgtc	atgagcccga	agtggcgagc	7020
ccgatcttcc	ccatcgggtg	tgtcggcgat	atagggcgca	gcaaccgcac	ctgtggcgcc	7080
ggtgatgccg	gccacgatgc	gtccggcgta	gagg			7114

<211> 5584

<212> DNA

<213> pDONR207

<400> 182

gcgagagtag ggaactgcc a ggcatacaaat aaaacgaaag gctcagtcgg aagactgggc 60  
ctttcggtttt atctgttgtt tgtcgggtgaa cgctctcctg agtaggacaa atccgccggg 120  
agcggatttg aacgttgtga agcaacggcc cggagggtgg cgggcaggac gcccgccata 180  
aactgccagg catcaaaacta agcagaaggc catcctgacg gatggccttt ttgcgtttct 240  
acaaactctt cctggctagc ggtaatacgg ttatccacag aatcaggggg taacgcagga 300  
aagaacatgt gagcaaaaagg ccagcaaaaag gccaggaacc gtaaaaaggc cgcgttgctg 360  
gcgttttttc ataggctccg cccccctgac gagcatcaca aaaatcgacg ctcaagtcag 420  
aggtggcgaa acccgacagg actataaaga taccaggcgt ttccccctgg aagctccctc 480  
gtgcgctctc ctgttccgac cctgccgctt accggatacc tgcccgctt tctcccttcg 540  
ggaagcgtgg cgctttctca tagctcacgc tgtaggtatc tcagttcggg gtaggtcggt 600  
cgctccaagc tgggctgtgt gcacgaaccc cccgttcagc ccgaccgctg cgccttatcc 660  
ggtaactatc gtcttgagtc caaccggta agacacgact tatcgccact ggcagcagcc 720  
actggtaaca ggattagcag agcgaggatg gtaggcggtg ctacagagtt cttgaagtgg 780  
tggcctaact acggctacac tagaaggaca gtatttggtg tctgcgctct gctgaagcca 840  
gttaccttcg gaaaaagagt tggtagctct tgatccggca aacaaaccac cgctggtagc 900  
ggtgggtttt ttgtttgcaa gcagcagatt acgcgcagaa aaaaaggatc tcaagaagat 960  
cctttgatct tttctacggg gtctgacgct cagtggaaacg aaaactcacg ttaagggatt 1020  
ttggtcatga gcttgccgg tcccgtaag tcagcgtaat gctctgccag tggtacaacc 1080  
aattaaccaa ttctgattag aaaaactcat cgagcatcaa atgaaactgc aatttattca 1140  
tatcaggatt atcaatacca tatttttgaa aaagccgttt ctgtaatgaa ggagaaaact 1200  
caccgaggca gttccatagg atggcaagat cctggatatc gtctgcgatt ccgactcgtc 1260  
caacatcaat acaacctatt agtagccaac cactagaact atagctagag tcctgggcga 1320  
acaaacgatg ctgccttcc agaaaaccga ggatgcgaac cacttcatcc ggggtcagca 1380  
ccaccggcaa gcgcgcgac ggccgaggtc ttccgatctc ctgaagccag ggcagatccg 1440  
tgcacagcac cttgccgtag aagaacagca aggccgcaa tgcctgacga tgcgtggaga 1500  
ccgaaacctt gcgctcggtc gccagccagg acagaaatgc ctgcacttcg ctgctgccca 1560  
aggttgccgg gtgacgcaca ccgtggaaac ggatgaaggc acgaaccag ttgacataag 1620

B1

cctgttcggt	tcgtaaactg	taatgcaagt	agcgtatgcg	ctcacgcaac	tggtccagaa	1680
ccttgaccga	acgcagcggt	ggtaacggcg	cagtggcggt	tttcatggct	tgttatgact	1740
gtttttttgt	acagtctatg	cctcggggcat	ccaagcagca	agcgcgttac	gccgtgggtc	1800
gatgtttgat	gttatggagc	agcaacgatg	ttacgcagca	gcaacgatgt	tacgcagcag	1860
ggcagtcgcc	ctaaaacaaa	gttaggtggc	tcaagtatgg	gcatcattcg	cacatgtagg	1920
ctcggccctg	accaagtcaa	atccatgcmg	gctgctcttg	atcttttcgg	tcgtgagttc	1980
ggagacgtag	ccacctactc	ccaacatcag	ccggactccg	attacctcgg	gaacttgctc	2040
cgtagtaaga	cattcatcgc	gcttgctgcc	ttcgaccaag	aagcggttgt	tggegtcttc	2100
gcggcttacg	ttctgcccag	gtttgagcag	ccgcgtagtg	agatctatat	ctatgatctc	2160
gcagtctccg	gcgagcaccg	gaggcagggc	attgccaccg	cgctcatcaa	tctcctcaag	2220
catgaggcca	acgcgcttgg	tgcttatgtg	atctacgtgc	aagcagatta	cggtgacgat	2280
cccgcagtgg	ctctctatac	aaagttgggc	atacgggaag	aagtgatgca	ctttgatatc	2340
gacccaagta	ccgccacctc	acaattcggt	caagccgaga	tcggcttccc	ggcctaattt	2400
cccctcgtca	aaaataaggt	tatcaagtga	gaaatcacca	tgagtgacga	ctgaatccgg	2460
tgagaatggc	aaaagtttat	gcatttcttt	ccagacttgt	tcaacaggcc	agccattacg	2520
ctcgtcatca	aatcactcgc	catcaaccaa	accgttattc	attcgtgatt	gcgcctgagc	2580
gagacgaaat	acgcgatcgc	tgtaaaaagg	acaattacaa	acaggaatcg	aatgcaaccg	2640
gcgcaggaac	actgccagcg	catcaacaat	attttcacct	gaatcaggat	attctttctaa	2700
tacctggaat	gctgtttttc	cggggatcgc	agtggtgagt	aacctatgat	catcaggagt	2760
acggataaaa	tgcttgatgg	tcggaagagg	cataaattcc	gtcagccagt	ttagtctgac	2820
catctcatct	gtaacatcat	tggaacgcct	acctttgcc	tgtttcagaa	acaactctgg	2880
cgcacgcggc	ttcccataca	agcgatagat	tgtcgcacct	gattgcccga	cattatcgcg	2940
agcccattta	tacccatata	aatcagcatc	catgttgga	tttaatcgcg	gcctcgacgt	3000
ttcccgttga	atatggctca	taacaccccc	tgtattactg	tttatgtaag	cagacagttt	3060
tattgttcat	gatgatatat	ttttatcttg	tgcaatgtaa	catcagagat	tttgagacac	3120
gggccagagc	tcgagctgga	tggaataaa	tgattttatt	ttgactgata	gtgacctgtt	3180
cgttgcaaca	aattgataag	caatgctttc	ttataatgcc	aactttgtac	aagaaagctg	3240
aacgagaaac	gtaaaatgat	ataaatatca	atatattaaa	ttagattttg	cataaaaaac	3300
agactacata	atactgtaaa	acacaacata	tccagtcact	atgaatcaac	tacttagatg	3360
gtattagtga	cctgtagtcg	actaagttgg	cagcatcacc	cgacgcactt	tgccgccgaat	3420
aaatacctgt	gacggaagat	cacttcgcag	aataaataaa	tcctgggtgtc	cctgttgata	3480



ccgggaagcc ctgggccaac tttggcgaaa atgagacgtt gatcggcacg taagaggttc 3540  
caactttcac cataatgaaa taagatcact accgggcgta ttttttgagt tatcgagatt 3600  
ttcaggagct aaggaagcta aaatggagaa aaaaatcact ggatatacca ccgttgatat 3660  
atcccaatgg catcgtaaag aacattttga ggcatttcag tcagttgctc aatgtaccta 3720  
taaccagacc gttcagctgg atattacggc ctttttaaag accgtaaaga aaaataagca 3780  
caagttttat ccggccttta ttcacattct tgcccgctg atgaatgctc atccggaatt 3840  
ccgtatggca atgaaagacg gtgagctggt gatatgggat agtggtcacc cttgttacac 3900  
cgttttccat gagcaaactg aaacgttttc atcgctctgg agtgaatacc acgacgattt 3960  
ccggcagttt ctacacatat attcgcaaga tgtggcgtgt tacggtgaaa acctggccta 4020  
tttccctaaa gggtttattg agaatatgtt tttcgtctca gccaatccct gggtgagttt 4080  
caccagtttt gatttaaagc tggccaatat ggacaacttc ttgcccccg ttttcacat 4140  
gggcaaatat tatacgcaag gcgacaaggt gctgatgccg ctggcgattc aggttcatca 4200  
tgccgtctgt gatggcttcc atgtcggcag aatgcttaat gaattacaac agtactgcga 4260  
tgagtggcag ggcggggct aatcgcgctg atccggctta ctaaaagcca gataacagta 4320  
tgcgtatttg cgcgctgatt tttgcggtat aagaatatat actgatatgt ataccggaag 4380  
tatgtcaaaa agaggtgtgc tatgaagcag cgtattacag tgacagttga cagcgacagc 4440  
tatcagttgc tcaaggcata tatgatgtca atatctccgg tctggtaagc acaaccatgc 4500  
agaatgaagc ccgtcgtctg cgtgccgaac gctggaaagc ggaaaatcag gaagggatgg 4560  
ctgaggtcgc ccggtttatt gaaatgaacg gctcttttgc tgacgagAAC agggactggt 4620  
gaaatgcagt ttaaggttta cacctataaa agagagagcc gttatcgtct gtttgtggat 4680  
gtacagagtg atattattga cagccccggg cgacggatgg tgatccccct ggccagtgcA 4740  
cgtctgctgt cagataaagt ctcccgtgaa ctttaccggg tgggtcatat cggggatgaa 4800  
agctggcgca tgatgaccac cgatatggcc agtgtgccgg tctccgttat cggggaagaa 4860  
gtggctgac tcagccaccg cgaaaatgac atcaaaaacg ccattaacct gatgttctgg 4920  
ggaatataaa tgtcaggctc cttatacac agccagtctg caggctcgata cagtagaaat 4980  
tacagaaact ttatcacgtt tagtaagtat agaggctgaa aatccagatg aagccgaacg 5040  
acttgtaaga gaaaagtata agagttgtga aattgttctt gatgcagatg attttcagga 5100  
ctatgacact agcgtatatg aataggtaga tgtttttatt ttgtcacaca aaaaagaggc 5160  
tcgcacctct ttttcttatt tctttttatg atttaatacg gcattgagga caatagcgag 5220  
taggctggat acgacgattc cgtttgagaa gaacatttgg aaggctgtcg gtcgactaag 5280  
ttggcagcat cccccgaaga acatttggaA ggctgtcggg cgactacagg tctaataac 5340

B1

catctaagta gttgattcat agtgactgga tatgttgtgt ttacagtat tatgtagtct	5400
gttttttatg caaaatctaa tttaatatat tgatatattat atcattttac gtttctcggt	5460
cagctttttt gtacaaagtt ggcattataa aaaagcattg ctcatcaatt tggtgcaacg	5520
aacaggtcac tatcagtcaa aataaaatca ttatttgggg cccgagatcc atgctagcgt	5580
taac	5584

<210> 183

<211> 7038

<212> DNA

<213> pMAB85

<400> 183

gccttacgca tctgtgcggt atttcacacc gcaggcaagt gcacaaacaa tacttaaata	60
aatactactc agtaataacc tatttcttag catttttgac gaaatttgct attttgtag	120
agtcttttac accatttgct tccacacctc cgcttacatc aacaccaata acgccattta	180
atctaagcgc atcaccaaca ttttctggcg tcagtccacc agctaacata aaatgtaagc	240
tttcggggct ctcttgccct ccaaccagct cagaaatcga gttccaatcc aaaagtccac	300
ctgtcccacc tgcttctgaa tcaaacaagg gaataaacga atgaggtttc tgtgaagctg	360
cactgagtag tatgttgtag tcttttgga atacgagtct tttaataact ggcaaaccga	420
ggaactcttg gtattcttgc cagcactcat ctccatgcag ttggacgata tcaatgccgt	480
aatcattgac cagagccaaa acatcctcct taggttgatt acgaaacacg ccaaccaagt	540
atttcggagt gcctgaacta tttttatatg cttttacaag acttgaaatt ttccttgcaa	600
taaccgggtc aattgttctc tttctattgg gcacacatat aataccagc aagtcagcat	660
cggaatctag agcacattct gcggcctctg tgcctctgaa gccgcaaact ttcaccaatg	720
gaccagaact acctgtgaaa ttaataacag acatactcca agctgccttt gtgtgcttaa	780
tcacgtatac tcacgtgctc aatagtcacc aatgccctcc ctcttgggcc tctccttttc	840
ttttttcgac cgaattaatt cttaatcggc aaaaaaagaa aagctccgga tcaagattgt	900
acgtaagggtg acaagctatt tttcaataaa gaatatcttc cactactgcc atctggcgctc	960
ataactgcaa agtacacata tattacgatg ctgtctatta aatgcttcct atattatata	1020
tatagtaatg tcgtttatgg tgcactctca gtacaatctg ctctgatgcc gcatagttaa	1080
gccagccccg acaccgcga acaccgctg acgcgccctg acgggcttgt ctgctcccgg	1140
catccgctta cagacaagct gtgaccgtct cggggagctg catgtgtcag aggttttcac	1200

cgtcatcacc	gaaacgcgcg	agacgaaagg	gcctcgtgat	acgcctat	ttatagg	1260
atgtcatgat	aataatggtt	tcttaggacg	gatcgcttgc	ctgtaactta	cacgcgcctc	1320
gtatctttta	atgatggaat	aatttgggaa	tttactctgt	gtttat	ttttatg	1380
tgtat	tttagaaag	taaataaaga	aggtagaaga	gttacggaat	gaagaaaaaa	1440
aaataa	agg	aatttcaaca	aaaagcgtac	tttaca	tatttattag	1500
acaagaaaag	cagattaaat	agatatacat	tcgattaacg	ataagtaaaa	tgtaaaatca	1560
caggat	gtgtgtggtc	ttctacacag	acaagatgaa	acaattcggc	attaatacct	1620
gagagcagga	agagcaagat	aaaaggtagt	at	gatcccccta	gagtct	1680
catcttcgga	aaacaaaaac	tatttttct	ttaatttctt	tttttact	ctatttttaa	1740
tttatatatt	tatattaaaa	aattttaaatt	ataattat	ttatagcacg	tgatgaaaag	1800
gacccaggtg	gcacttttcg	gggaaatgtg	cgcggaaccc	ctattt	at	1860
atacattcaa	atatgtatcc	gctcatgaga	caataaccct	gataaatgct	tcaataatat	1920
tgaaaaagga	agagtatgag	tattcaacat	ttc	cccttattcc	cttttttgcg	1980
gcattttg	ttcctgtttt	tgctcaccca	gaaacgctgg	tgaaagtaaa	agatgctgaa	2040
gatcagttgg	gtgcacgagt	gggttacatc	gaactggatc	tcaacagcgg	taagatcctt	2100
gagagt	gccccgaaga	acgttttcca	atgatgagca	cttttaaagt	tctgctatgt	2160
ggcgcggtat	tatcccgat	tgacgcggg	caagagcaac	tcggtcgccg	catacactat	2220
tctcagaatg	acttggttga	gtactcacca	gtcacagaaa	agcatcttac	ggatggcatg	2280
acagtaagag	aattatgcag	tgctgccata	accatgagtg	ataacactgc	ggccaactta	2340
cttctgacaa	cgatcggagg	accgaaggag	ctaaccgctt	tttttcacaa	catgggggat	2400
catgtaactc	gccttgatcg	ttgggaaccg	gagctgaatg	aagccatacc	aaacgacgag	2460
cgtgacacca	cgatgcctgt	agcaatggca	acaacgttgc	gcaaactatt	aactggcgaa	2520
ctacttactc	tagcttcccg	gcaacaatta	atagactgga	tggaggcgga	taaagttgca	2580
ggaccacttc	tgcgctcggc	ccttccgggt	ggctggttta	ttgctgataa	atctggagcc	2640
ggtgagcgtg	ggtctcgcgg	tatcattgca	gcactggggc	cagatggtaa	gcctcccg	2700
atcgtagtta	tctacacgac	gggcagtcag	gcaactatgg	atgaacgaaa	tagacagatc	2760
gctgagatag	gtgcctcact	gattaagcat	tggttaactgt	cagaccaagt	ttactcatat	2820
atactttaga	ttgattttaa	acttcatttt	taattttaa	ggatctaggt	gaagatcctt	2880
tttgataatc	tcatgaccaa	aatcccttaa	cgtgagtttt	cgttccactg	agcgtcagac	2940
cccgtagaaa	agatcaaagg	atcttcttga	gatccttttt	ttctgcgcgt	aatctgctgc	3000
ttgcaa	aaaaaccacc	gctaccagcg	gtgggtttgtt	tgccggatca	agagctacca	3060

actctttttc	cgaaggtaac	tggcttcagc	agagcgcaga	taccaaatac	tgtcctttcta	3120
gtgtagccgt	agttaggcca	ccacttcaag	aactctgtag	caccgcctac	atacctcgct	3180
ctgctaatacc	tgttaccagt	ggctgctgcc	agtggcgata	agtcgtgtct	taccgggttg	3240
gactcaagac	gatagttacc	ggataaggcg	cagcggtcgg	gctgaacggg	gggttcgtgc	3300
acacagccca	gcttggagcg	aacgacctac	accgaactga	gataacctaca	gcgtgagcat	3360
tgagaaagcg	ccacgcttcc	cgaagggaga	aaggcggaca	ggtatccggt	aagcggcagg	3420
gtcggaaacag	gagagcgcac	gagggagctt	ccagggggga	acgcctggta	tctttatagt	3480
cctgtcgggt	ttcgccacct	ctgacttgag	cgtcgatttt	tgtgatgctc	gtcagggggg	3540
ccgagcctat	ggaaaaacgc	cagcaacgcg	gccttttttac	ggttcctggc	cttttgctgg	3600
ccttttgctc	acatgttctt	tcttgcttta	tcccctgatt	ctgtggataa	ccgtattacc	3660
gcctttgagt	gagctgatac	cgctcgccgc	agccgaacga	ccgagcgcag	cgagtcagtg	3720
agcgaggaag	cggaagagcg	cccaatacgc	aaaccgcctc	tccccgcgcg	ttggccgatt	3780
cattaatgca	gctggcacga	caggtttccc	gactggaaaag	cgggcagtga	gcgcaacgca	3840
attaatgtga	gttacctcac	tcattaggca	ccccaggctt	tacactttat	gcttcgggct	3900
cctatgttgt	gtggaattgt	gagcggataa	caatttcaca	caggaaacag	ctatgaccat	3960
gattacgccca	agctcggaat	taaccctcac	taaagggaac	aaaagctggg	taccgggccc	4020
cccctcgaga	tccgggatcg	aagaaatgat	ggtaaataga	ataggaaatc	aaggagcatg	4080
aaggcaaaaag	acaaatataa	gggtcgaacg	aaaaataaag	tgaaaagtgt	tgatatgatg	4140
tatttggtct	tgcggcgcgc	aaaaaacgag	tttacgcaat	tgacacatca	tgctgactct	4200
gtggcggacc	cgcgctcttg	ccggcccggc	gataacgctg	ggcgtgaggc	tgtgcccggc	4260
ggagtttttt	gcgcctgcat	tttccaagg	ttaccctgcg	ctaagggggc	agattggaga	4320
agcaataaga	atgccgggtg	gggttgcgat	gatgacgacc	acgacaactg	gtgtcattat	4380
ttaagttgcc	gaaagaacct	gagtgcattt	gcaacatgag	tatactagaa	gaatgagcca	4440
agacttgcca	gacgcgagtt	tgccggtggt	gcgaacaata	gagcgaccat	gaccttgaag	4500
gtgagacgcg	cataaccgct	agagtacttt	gaagaggaaa	cagcaatagg	gttgctacca	4560
gtataaatag	acaggtacat	acaacactgg	aatatggttg	ctgtttgagt	acgctttcaa	4620
ttcatttggg	tgtgcacttt	attatgttac	aatatggaag	ggaactttac	acttctccta	4680
tgcacatata	ttaattaaaag	tccaatgcta	gtagagaagg	ggggtaacac	ccctccgcgc	4740
tcttttccga	tttttttcta	aaccgtggaa	tatttcggat	atccttttgt	tgtttccggg	4800
tgtacaatat	ggacttcctc	ttttctggca	accaaaccga	tacatcggga	ttcctataat	4860
accttcgttg	gtctccctaa	catgtaggtg	gcggagggga	gatatacaat	agaacagata	4920

ccagacaaga	cataatgggc	taaacaagac	tacaccaatt	acactgcctc	attgatgggtg	4980
gtacataacg	aactaatact	gtagccctag	acttgatagc	catcatcata	tccaagtttc	5040
actacccttt	ttccatttgc	catctattga	agtaataata	ggcgcatgca	acttcttttc	5100
tttttttttc	ttttctctct	cccccgttgt	tgtctcacca	tatccgcaat	gacaaaaaaaa	5160
atgatggaag	acactaaagg	aaaaaattaa	cgacaaagac	agcaccaaca	gatgtcgttg	5220
ttccagagct	gatgaggggt	atcttcgaac	acacgaaact	tttcccttcc	ttcattcacg	5280
cacactactc	tctaattgagc	aacggtatac	ggccttcctt	ccagttactt	gaatttgaaa	5340
taaaaaaagt	ttgccgcttt	gctatcaagt	ataaatagac	ctgcaattat	taatcttttg	5400
tttctctgtc	attgttctcg	ttccctttct	tccttgtttc	tttttctgca	caatatttca	5460
agctatacca	agcatacaat	caactccaag	cttatgccc	agaagaagcg	gaaggctctg	5520
agcggcgcca	attttaatca	aagtgggaat	attgctgata	gctcattgtc	cttcactttc	5580
actaacagta	gcaacgggtcc	gaacctcata	acaactcaaa	caaattctca	agcgctttca	5640
caaccaattg	cctcctctaa	cgttcatgat	aacttcatga	ataatgaaat	cacggctagt	5700
aaaattgatg	atggtaataa	ttcaaaaacca	ctgtcacctg	gttggacgga	ccaaactgcg	5760
tataacgcgt	ttggaatcac	tacagggatg	tttaatacca	ctacaatgga	tgatgtatat	5820
aactatctat	tccgatgatga	agatacccca	ccaaacccaa	aaaaagaggg	tgggtcgatc	5880
acaagtttgt	acaaaaaagc	aggcttgctg	accccgggaa	ttcagatcta	ctagtgcggc	5940
cgcacgcgta	cccagctttc	ttgtacaaag	tggtgacgtc	gagctcccta	tagtgagtcg	6000
tattacactg	gccgtcgttt	tacaacgtcg	tgactgggaa	aacaccgggtg	agctctaagt	6060
aagtaacggc	cgccaccgcg	gtggagcttt	ggacttcttc	gccagagggtt	tgggtcaagtc	6120
tccaatcaag	gttgtcggct	tgtctacctt	gccagaaatt	tacgaaaaga	tggaaaagggt	6180
tcaaatecgtt	ggtagatacg	ttgttgacac	ttctaaataa	gcgaatttct	tatgatattat	6240
gatttttatt	attaaataag	ttataaaaaa	aataagtgtg	tacaaatttt	aaagtgactc	6300
ttaggtttta	aaacgaaaat	tcttgttctt	gagtaactct	ttctgtagg	tcagggttgc	6360
ttctcaggta	tagcatgagg	tcgtctcttat	tgaccacacc	tctaccggca	tgccgagcaa	6420
atgcctgcaa	atcgctcccc	atttcaccca	attgtagata	tgctaactcc	agcaatgagt	6480
tgatgaatct	cgggtgtgtat	tttatgtcct	cagaggacaa	tacctgttgt	aatcgttctt	6540
ccacacggat	cgcacatcagg	cgaaattgtg	aacgttaata	ttttgttaaa	attcgcgtta	6600
aatatttggt	aatcagctc	atTTTTTaaC	caataggccg	aatcggcaa	aatcccttat	6660
aatcaaaaag	aatagaccga	gataggggtg	agtgttggtc	cagtttgga	caagagtcca	6720
ctattaaaga	acgtggactc	caacgtcaaa	gggcgaaaaa	ccgtctatca	ggcgcatggc	6780

ccactacgtg aaccatcacc ctaatcaagt tttttgggggt cgaggtgccg taaagcacta 6840  
aatcggaacc ctaaagggag cccccgattt agagcttgac ggggaaagcc ggcgaacgtg 6900  
gcgagaaagg aagggaagaa agcgaaagga gcgggcgcta gggcgctggc aagtgtagcg 6960  
gtcacgctgc gcgtaaccac cacacccgcc gcgcttaatg cgccgctaca gggcgcgctcc 7020  
cattcgccat tcactgca 7038

<210> 184

<211> 7146

<212> DNA

<213> pMAB86

B1  
<400> 184  
gacgaaaggg cctcgtgata cgcctathtt tataggttaa tgtcatgata ataatggttt 60  
cttaggacgg atcgcttgcc tgtaacttac acgcgcctcg tatcttttaa tgatggaata 120  
at ttgggaat ttactctgtg tttathttatt tttatgtttt gtatttggat tttagaaagt 180  
aaataaagaa ggtagaagag ttacggaatg aagaaaaaaa aataaacaaa ggttttaaaaa 240  
at ttcaacaa aaagcgtact ttacatatat at ttattaga caagaaaagc agattaaata 300  
gatatacatt cgattaacga taagtaaaat gtaaaatcac aggattttcg tgtgtgggtct 360  
tctacacaga caagatgaaa caattcggca ttaataacctg agagcaggaa gagcaagata 420  
aaaggtagta tttgttggcg atccccctag agtctttttac atcttcggaa aacaaaaact 480  
at ttttttctt taattttctt ttttactttc tattttttaat ttatatattt atattaaaaa 540  
at tttaaatta taattatttt tatagcacgt gatgaaaagg acccaggtgg cacttttctgg 600  
ggaaatgtgc gcggaacccc tatttgttta tttttctaaa tacattcaaa tatgtatccg 660  
ctcatgagac aataaccctg ataaatgctt caataatatt gaaaaaggaa gagtatgagt 720  
attcaacatt tccgtgtcgc ctttattccc ttttttgegg cattttgcct tctgtttttt 780  
gtcacccag aaacgctggg gaaagtaaaa gatgctgaag atcagttggg tgcacgagtg 840  
ggttacatcg aactggatct caacagcggg aagatccttg agagttttcg ccccgaagaa 900  
cgttttccaa tgatgagcac ttttaaagtt ctgctatgtg gcgcgggtatt atcccggtatt 960  
gacgccgggc aagagcaact cggtcgccgc atacactatt ctcagaatga cttgggttgag 1020  
tactcaccag tcacagaaaa gcattcttac gatggcatga cagtaagaga attatgcagt 1080  
gctgccataa ccatgagtga taacactgcg gccaaacttac ttctgacaac gatcggagga 1140  
ccgaaggagc taaccgcttt ttttcacaac atgggggatc atgtaactcg cttgatcgt 1200

tgggaaccgg agctgaatga agccatacca aacgacgagc gtgacaccac gatgcctgta 1260  
 gcaatggcaa caacgttgcg caaactatta actggcgaac tacttactct agcttcccgg 1320  
 caacaattaa tagactggat ggaggcggat aaagttgcag gaccacttct gcgctcggcc 1380  
 cttccggctg gctggtttat tgctgataaa tctggagccg gtgagcgtgg gtctcgcggt 1440  
 atcattgcag cactggggcc agatggtaag ccctcccgtg tcgtagttat ctacacgacg 1500  
 ggagtcagg caactatgga tgaacgaaat agacagatcg ctgagatagg tgcctcactg 1560  
 attaagcatt ggtaactgtc agaccaagtt tactcatata tacttttagat tgatttaaaa 1620  
 cttcattttt aatttaaaag gatctaggtg aagatccttt ttgataatct catgacccaa 1680  
 atcccttaac gtgagttttt gttccactga gcgtcagacc ccgtagaaaa gatcaaagga 1740  
 tcttcttgag atcctttttt tctgcgcgta atctgctgct tgcaaacaaa aaaaccaccg 1800  
 ctaccagcgg tggtttggtt gccggatcaa gagctaccaa ctctttttcc gaaggtaact 1860  
 ggcttcagca gagcgcagat accaaatact gtccttctag tgtagccgta gttaggccac 1920  
 cacttcaaga actctgtagc accgcctaca tacctcgctc tgctaatacct gttaccagtg 1980  
 gctgctgcca gtggcgataa gtcgtgtctt accgggttgg actcaagacg atagttaccg 2040  
 gataaggcgc agcggtcggg ctgaacgggg gggttcgtgca cacagcccag cttggagcga 2100  
 acgacctaca ccgaactgag atacctacag cgtgagcatt gagaaagcgc cacgcttccc 2160  
 gaagggagaa aggcggacag gtatccggta agcggcaggg tcggaacagg agagcgcacg 2220  
 agggagcttc caggggggaa cgccctggat ctttatagtc ctgtcgggtt tcgccacctc 2280  
 tgacttgagc gtcgattttt gtgatgctcg tcaggggggc cgagcctatg gaaaaacgcc 2340  
 agcaacgcgg cttttttacg gttcctggcc ttttgctggc cttttgctca catgttcttt 2400  
 cctgcgttat cccctgattc tgtggataac cgtattaccg cttttgagtg agctgatacc 2460  
 gctcgccgca gccgaacgac cgagcgcagc gagtcagtga gcgaggaagc ggaagagcgc 2520  
 ccaatacgca aaccgcctct ccccgcgctg tggccgattc attaatgcag ctggcacgac 2580  
 aggtttcccg actggaaagc gggcagtgag cgcaacgcaa ttaatgtgag ttacctcact 2640  
 cattaggcac ccaggcttt acactttatg cttccggctc ctatgttgtg tggaattgtg 2700  
 agcggataac aatttcacac aggaaacagc tatgaccatg attacgcaa gctcgggaatt 2760  
 aaccctcact aaagggaaca aaagctgggt accgggcccc cctcagat ccgggatcga 2820  
 agaaatgatg gtaaataaaa taggaaatca aggagcatga aggcaaaaga caaatataag 2880  
 ggtcgaacga aaaataaagt gaaaagtgtt gatatgatgt atttggcttt gcggcgccga 2940  
 aaaaacgagt ttacgcaatt gcacaatcat gctgactctg tggcggaccc gcgctcttgc 3000  
 cggcccgcg ataacgctgg gcgtgaggct gtgcccggcg gagttttttg cgccctgcatt 3060

B1

ttccaagggtt	taccctgcgc	taaggggcca	gattggagaa	gcaataagaa	tgccggttgg	3120
ggttgcgatg	atgacgacca	cgacaactgg	tgtcattatt	taagttgccg	aaagaacctg	3180
agtgcatttg	caacatgagt	atactagaag	aatgagccaa	gacttgcgag	acgcgagttt	3240
gccggtggtg	cgaacaatag	agcgaccatg	accttgaagg	tgagacgcgc	ataaccgcta	3300
gagtactttg	aagaggaaac	agcaataggg	ttgctaccag	tataaataga	caggtacata	3360
caacactgga	aatgggtgtc	tgtttgagta	cgctttcaat	tcatttgggt	gtgcacttta	3420
ttatgttaca	atatggaagg	gaactttaca	cttctcctat	gcacatatat	taattaaagt	3480
ccaatgctag	tagagaaggg	gggtaacacc	cctccgcgct	cttttccgat	ttttttctaa	3540
accgtggaat	atttcggata	tccttttgtt	gtttccgggt	gtacaatatg	gacttcctct	3600
tttctggcaa	ccaaacccat	acatcgggat	tcctataata	ccttcggttg	tctccctaac	3660
atgtaggttg	cggaggggag	atatacaata	gaacagatac	cagacaagac	ataatgggct	3720
aaacaagact	acaccaatta	cactgcctca	ttgatgggtg	tacataacga	actaatactg	3780
tagccctaga	cttgatagcc	atcatcatat	cgaagtttca	ctaccctttt	tccatttgcc	3840
atctattgaa	gtaataatag	gcgcatgcaa	cttcttttct	ttttttttct	tttctctctc	3900
ccccgttggt	gtctcaccat	atccgcaatg	acaaaaaaaa	tgatggaaga	cactaaagga	3960
aaaaattaac	gacaaagaca	gcaccaacag	atgtcggtgt	tccagagctg	atgaggggta	4020
tcttcgaaca	cacgaaactt	tttccttctt	tcattcacgc	acactactct	ctaatgagca	4080
acggtatacg	gccttccttc	cagttacttg	aatttgaaat	aaaaaaaaagt	tgccgctttg	4140
ctatcaagta	taaatagacc	tgcaattatt	aatcttttgt	ttcctcgtea	ttgttctcgt	4200
tccttttctt	ccttgtttct	ttttctgcac	aatatttcaa	gctataccaa	gcatacaatc	4260
aactccaagc	ttatgcccaa	gaagaagcgg	aaggctcga	gcggcgccaa	ttttaatcaa	4320
agtgggaata	ttgctgatag	ctcattgtcc	ttcactttca	ctaacagtag	caacgggtccg	4380
aacctcataa	caactcaaac	aaattctcaa	gcgctttcac	aaccaattgc	ctcctctaac	4440
gttcatgata	acttcatgaa	taatgaaatc	acggctagta	aaattgatga	tggtataaat	4500
tcaaaaccac	tgtcacctgg	ttggacggac	caaactgcgt	ataacgcgtt	tggaatcact	4560
acagggatgt	ttaataccac	tacaatggat	gatgtatata	actatctatt	cgatgatgaa	4620
gataccccac	caaaccctaaa	aaaagagggt	gggtcgatca	caagtttgta	caaaaaagca	4680
ggcttgtega	ccccgggaat	tcagatctac	tagtgcgggc	gcacgcgtac	ccagctttct	4740
tgtacaaagt	ggtgacgtcg	agctctaagt	aagtaacggc	cgccaccgcg	gtggagcttt	4800
ggacttcttc	gccagagggt	tggtcaagtc	tccaatcaag	gttgctgggt	tgtctacctt	4860
gccagaaatt	tacgaaaaga	tggaaaaggg	tcaaatcggt	ggtagatacg	ttgttgacac	4920



ttctaaataa gcgaatttct tatgatttat gattttttatt attaaataag ttataaaaaa 4980  
 aataagtgtg tacaaatttt aaagtgactc ttaggtttta aaacgaaaat tcttgttctt 5040  
 gagtaactct ttctgtagg tcaggttgct ttctcaggta tagcatgagg tcgctcttat 5100  
 tgaccacacc tctaccggca tgccgagcaa atgctgcaa atcgctcccc atttcaccca 5160  
 attgtagata tgctaactcc agcaatgagt tgatgaatct cgggtgtgtat tttatgtctt 5220  
 B1  
 gagaggacaa tacctgttgt aatcgttctt ccacacggat cccaattcgc cctatagtga 5280  
 gtcgtattac aattcactgg ccgtcgtttt acaacgtcgt gactgggaaa accctggcgt 5340  
 tacccaactt aatcgcttg cagcacatcc ccttttcgcc agctggcgta atagcgaaga 5400  
 ggcccgacc gatcgccctt cccaacagtt gcgcagcctg aatggcgaat ggacgcgccc 5460  
 tgtagcggcg cattaagcgc ggccgggtgtg gtggttacgc gcagcgtgac cgctacactt 5520  
 gccagcgcgc tagcgcgcgc tcctttcgtt ttcttccctt cctttctcgc caggttcgcc 5580  
 ggctttcccc gtcaagctct aaatcggggg ctccttttag ggttccgatt tagtgcttta 5640  
 cggcacctcg accccaaaaa acttgattag ggtgatggtt cacgtagtgg gccatcgccc 5700  
 tgatagacgg tttttcgccc ttgacgttg gagtccacgt tctttaatag tggactcttg 5760  
 ttccaaactg gaacaacact caaccctatc tcggtctatt cttttgattt ataagggatt 5820  
 ttgccgattt cggcctattg gttaaaaaat gagctgattt aacaaaaatt taacgcgaat 5880  
 tttacaaaaa tattaacgtt tacaatttcc tgatgcggta ttttctcctt acgcactctg 5940  
 gcggtatttc acaccgcagg caagtgcaca aacaatactt aaataaatac tactcagtaa 6000  
 taacctattt cttagcattt ttgacgaaat ttgctatttt gttagagtct tttacaccat 6060  
 ttgtctccac acctccgctt acatcaacac caataacgcc atttaatcta agcgcacac 6120  
 caacattttc tggcgctcagt ccaccagcta acataaaaatg taagctttcg gggctctctt 6180  
 gccttccaac ccagtcagaa atcgagttcc aatccaaaag ttcacctgtc ccacctgctt 6240  
 ctgaatcaaa caagggaata aacgaatgag gtttctgtga agctgcactg agtagtatgt 6300  
 tgcagtcttt tggaaatacg agtcttttaa taactggcaa accgaggaac tcttggtatt 6360  
 cttgccacga ctcatctcca tgcagttgga cgatatcaat gccgtaatca ttgaccagag 6420  
 ccaaaacatc ctcttaggt tgattacgaa acacgccaac caagtatttc ggagtgcctg 6480  
 aactattttt atatgctttt acaagacttg aaattttcct tgcaataacc gggccaattg 6540  
 ttctctttct attgggcaca catataatac ccagcaagtc agcatcggaa tctagagcac 6600  
 attctgcggc ctctgtgctc tgcaagccgc aaactttcac caatggacca gaactacctg 6660  
 tgaaattaat aacagacata ctccaagctg cctttgtgtg cttaatcacg tatactcacg 6720  
 tgctcaatag tcaccaatgc cctccctctt ggccctctcc ttttcttttt tcgaccgaat 6780